Age
1929

# The RUBBER AGE

VOL. 26, NO. 6 DECEMBER 25, 1929

# *Late News of the Rubber Industry*

### *Rubber Consumption in 11 Months Exceeds Entire Year of 1928*

CONSUMPTION of crude rubber of all classes by manufacturers in the United States in the month of November is estimated at 27,659 long tons, according to statistics compiled by The Rubber Manufacturers' Association. This compares with estimated consumption of 34,800 long tons in October and 37,461 long tons in November, 1928.

Total consumption of crude rubber by American manufacturers for the first eleven months of this year is estimated at 446,273 long tons, according to the monthly reports of the association. Consumption during the first eleven months of 1928 was 410,107 long tons.

Consumption of reclaimed rubber is estimated at 14,742 long tons for November and 213,819 long tons for the eleven months period. Corresponding figures are 18,024 long tons in October; 16,983 long tons in November, 1928, and 208,680 long tons for the first eleven months of last year.

The association estimates total domestic stocks of crude rubber on hand and in transit overland on November 30 at 92,219 long tons compared with 88,483 long tons as of October 31. Crude rubber afloat for United States ports on November 30 is estimated at 62,358 long tons as against a revised figure of 62,294 long tons on October 31.

### *Goodyear Earnings During 1929 Figured at Nearly $22,500,000*

EARNINGS of the Goodyear Tire & Rubber Company are continuing at nearly the same record breaknig pace that marked the first nine months of its current year, and net profits of the company for the full twelve months of 1929 is estimated at close to $22,500,000, or $12 a share on the outstanding common stock. This would surpass its previous record earnings of $21,005,899 in 1925, the year when crude rubber soared above $1.20 a pound, and compares with $3,549,139 in 1926, $16,635,667 in 1927, and $10,827,844 in 1928. These figures represent actual results of operations without allowing for reserve appropriations.

Dollar sales during the current year are figured to reach a total of approximately $275,000,000 as against consolidated sales in 1928 of $250,769,209. The output of tires by all Goodyear factories in 1929 is estimated at 25,000,000, a volume equal to about 30 per cent of all the tires sold in the United States this year.

This estimate of net profits is based on the belief that Goodyear will earn approximately $4,000,000 in the final three months of the year. Inasmuch as first half earnings were $12,633,865 and third quarter earnings about $5,791,000, this appears to be conservative. Tire business is somewhat lower in the final quarter of the year, but Goodyear is now turning out 250,000 pairs of rubber heels daily and is doing a heavy business in mechanical goods, druggists' sundries and other lines of manufactured rubber products.

The first dividend on Goodyear common stock since reorganization of the company in 1921 was paid on August 1, 1929, on a basis of $5 a year. This dividend rate represents about 81 per cent of the company's average share earnings for the past six years and 42 per cent of estimated 1929 earnings.

P. W. Litchfield, president of the company, has already stated that the outlook for 1930 is for even larger physical volume of business that that enjoyed by Goodyear during the current year, which has broken all previous records. With the opening of the new tire factory at Gadsden, Ala., this year, Goodyear's plants have a total capacity of more than 102,000 casings a day. Plans have also been discussed for the erection of a new factory in South America, with capacity for 3,000 tires a day at its opening.

The court of appeals at Cleveland last month granted Kent P. Johnson, of Kenton, O., permission to file an amended petition in his suit against the Goodyear Tire & Rubber Company, of which he is a stockholder, for the payment of $16,000,000 in back dividends on the old preferred stock. The suit is the outgrowth of a refinancing plan adopted in 1927 whereby 1¼ shares of a new issue of no-par preferred stock were issued for each share of the old $100 par value preferred stock on which 25 per cent dividends had accumulated. All but 4,565 shares of the old preferred were exchanged under this offer, and these few shares were retired last May. Johnson's amended suit asks that the directors and officers be required to return to the paid in surplus the sum of $10,187,786 and to the ordinary surplus $5,285,390, and also that the total capital of the new preferred shares be reduced from $100 to $80 per share. The suit was previously thrown out of common pleas court.

## "Tire Topics" Taken Over By New Management

THE Coverage Publishing Corporation, publishers of *Tire and Auto Accessory Topics*, 250 West 57th Street, New York City, announces that the publication has been purchased by John McAleenan, 575 Park Avenue, New York City. It is understood that the paper, started in October, 1928, with a circulation of 40,000 among rated tire dealers, will be enlarged and greatly improved with the January, 1930, issue.

The present officers, consisting of Harvey Willson, president; Paul L. Palmerton, vice-president; Peter P. Pinto, vice-president and treasurer; and Earl D. Osborn, secretary, have resigned, effective December 16. Mr. Willson will, however, remain with the new organization in the capacity of general manager, and Mr. McAleenan will become president of the new company to be incorporated.

Plans already under way contemplate an increased editorial and business staff and an enlargement of the publication to meet the needs of the retail tire industry.

## *Seiberling Earnings Lower; Dividend on Common Omitted*

WITH sales and profits considerably lower for 1929 than for the previous year, the Seiberling Rubber Company, which has paid an annual dividend of $1 on its common stock in the past two years, will take no action on the junior issue at this time. In his annual report to stockholders, F. A. Seiberling, president of the company, said, "It has been the policy to pay dividends only out of earnings. While earnings were sufficient to cover preferred dividends, no appreciable earnings exist to apply to common dividends, and, therefore, none will be declared at this time."

The report of the Seiberling Rubber Company and subsidiaries for the year ended October 31, 1929, shows a net income of $132,207 after depreciation, federal taxes and other charges, equivalent after 8 per cent preferred dividends, to less than one cent a share on 267,346 shares of no-par common stock. This compares with earnings of $511,968, or $1.69 a share, on 243,848 shares of common stock in the preceding year. Earnings in the latter year included $108,185 excess over declared value on shares of no-par common capital stock issued in exchange for three-year 5½ per cent gold notes surrendered and cancelled. In the ten months ended October 31, 1927, Seiberling earnings were $1,016,068, equal to $3.84 a common share.

Gross profits from all sources, before charges for depreciation and federal taxes, were $498,374, as compared with $876,716 in 1928 and with $1,385,282 in the ten months ended October 31, 1927. After payment of dividends this year, the income account shows a deficit of $241,786 as against a surplus of $195,124 last year and $970,430 on October 31, 1927.

Net sales for the year ended October 31 amounted to $12,312,231. This marks a considerable reduction from the total of $16,329,111 a year previous, and is even less than the net sales of $12,367,144 in the first ten months of 1927. The drop in dollar value of sales, however, is largely due to the lower prices for tires and other rubber products prevailing in 1929 and does not indicate a loss in unit sales.

The common stock of the Seiberling Rubber Company has been probably the worst sufferer among the leading rubber manufacturers in the recent securities market fall Seiberling common has declined steadily from a high point of of 67⅞ last December to a low of 10 last month, and is at present selling only a few points above this level. At its lowest the stock showed a loss in total market valuation of more than $15,000,000. The preferred stock of the company, which sold as high as 107⅞ early this year, has now dropped to about 72 on the Cleveland Stock Exchange.

The annual stockholders' meeting of the company was held on December 16 for the purpose of electing directors.

Consolidated income account of the Seiberling Rubber Company and subsidiaries for the year ended October 31 compares as follows with the two previous fiscal periods:

| | Year end. Oct. 31, '29 | Year end. Oct. 31, '28 | 10 mos. end. Oct. 31, '27 |
|---|---|---|---|
| Operating profit | $453,449 | $768,531 | $1,385,282 |
| *Other income | 44,925 | 108,185 | ..... |
| Total income | $498,374 | $876,716 | $1,385,282 |
| Depreciation | 352,961 | 304,588 | 214,863 |
| Federal taxes | 8,177 | 60,000 | 154,351 |
| Prem. paid on pfd. stk. | 5,029 | 160 | ..... |
| Net income | $132,207 | $511,968 | $1,016,068 |
| Preferred dividends | 129,917 | 97,735 | 45,638 |
| Common dividends | 244,076 | 219,109 | ..... |
| Deficit | $241,786 | †$195,124 | †$970,430 |

*Excess over declared value on shares of no-par common capital stock issued in exchange for three-year 5½% gold notes, surrendered and cancelled. †Surplus.

## *Firestone Tire and Rubber Earns $7,726,870 in Year*

FINAL reports of the Firestone Tire & Rubber Company and subsidiaries, including foreign companies, for the year ended October 31, 1929, shows a net profit of $7,726,870 after depreciation, interest, Liberia development expenses, federal taxes and other charges. After deducting dividends on the preferred stock, the report states, the balance applicable to the common stock outstanding during the year was $16.35 a share, or equivalent after the 400 per cent stock dividend paid to stockholders of record October 28 last, to $3.27 a share. The earnings per share are figured after dividends on the old preferred issues rather than after dividend requirements on the new $60,000,000 issue of cumulative preferred stock.

In the company's previous fiscal year, net profit after depreciation, federal taxes, Liberia expenditures and absorbing all losses on rubber commitments and crude rubber agency operations in excess of reserve for general contingencies was $7,072,014, equal after preferred dividends to $14.66 a share on the 370,090 common shares then outstanding. The company's net profit in 1927 was $13,780,965.

The consolidated balance sheet of the Firestone Tire & Rubber Company and subsidiaries, as of October 31, 1929, shows total assets of $161,647,466, as compared with a total of $110,650,400 a year previous. About a third of this increase is represented by cash, as shown by the recent present figure of $30,039,103 as against the 1928 figure of $13,148,416. The value of land, buildings and machinery has increased in the same time from $36,044,866 in 1928 to $51,084,204 in 1929. Inventories also show a considerable rise, being figured at $41,228,632 on

October 31 as against $24,759,511 on the same date last year. Current assets are over $88,000,000 as against current liabilities of about $8,500,000 a ratio better than 10 to 1.

Of the liabilities, the new preferred stock is represented by $60,00,000, as compared with $23,025,900 last year for the combined 6 per cent and 7 per cent preferred issues that have now been retired. The common stock account has been raised to $22,398,600 from $3,700,900 a year ago, and the bonds of subsidiaries are carried at $22,717,800. Surplus is slightly lower at $47,453,508 as against $53,087,352 a year ago.

During the year, the Firestone company has expanded its activities by building a $3,000,000 addition to its Los Angeles plant, making that the largest tire factory west of Akron, by adding a battery division to its Akron steel products unit, and by greatly extending its operations in the super station chain field.

The consolidated income account of the company for the year ended October 31, 1929, compares as follows with the two preceding years:

| | 1929 | 1928 | 1927 |
|---|---|---|---|
| Net sales | $144,585,804 | $125,664,666 | $127,696,759 |
| Costs and expenses | 128,761,132 | ..... | ..... |
| Operating profit | $ 15,824,672 | ..... | ..... |
| Depreciation | 4,639,792 | ..... | ..... |
| Interest paid | 1,240,548 | ..... | ..... |
| Liberia devel. exp. | 1,074,218 | ..... | ..... |
| Emp. stk. acct. | 109,524 | ..... | ..... |
| Amortization, etc. | 104,149 | ..... | ..... |
| Federal taxes | 929,571 | ..... | ..... |
| Net profit | $ 7,726,870 | *$7,072,014 | $13,780,965 |
| 6% pfd. divs. | 388,506 | 415,792 | 429,723 |
| 7% pfd. divs. | 1,168,658 | 1,166,440 | 1,188,666 |
| Pfd. divs. Fire Ftwr. | 31,951 | 64,312 | 65,443 |
| Common divs. | 2,948,280 | 3,690,280 | 2,472,833 |
| Res. for cont. | ..... | 500,000 | 500,000 |
| Surplus | $ 3,189,475 | $1,235,190 | $9,124,300 |
| P. & L. surplus | 47,453,508 | 53,087,352 | 50,131,826 |

*After depreciation, Liberia development expenditures, federal taxes, and after absorbing all losses on rubber commitments and crude rubber agency operations in excess of reserve for general contingencies.

## *November Rim Production Is the Lowest in Years*

THE output of automobile and other rims during the month of November proved to be the lowest not only for the current year but for several years past. During the past month the number of rims inspected and approved by the Tire & Rim Association, Inc., totaled only 596,989, as compared with 1,647,350 in October and with 1,213,245 in November of last year.

Until November, rim production in the United States this year has continued to be appreciably above 1,500,000 every month. During the first ten months of 1929, the output averaged 2,266,525 a month with an all-time record high mark of 2,729,899 rims being turned out in April. The last previous time that rim production dropped below the million-mark was in November, 1927, when 838,591 rims were produced.

Total production for the first eleven months of 1929 is now barely ahead of the same period of last year and December production would have to be 985,039 in order to have the current year's output equal to that of all 1928. The actual total for the first eleven months stands at 23,262,243 as against 23,146,089 during the corresponding period in 1928.

## *Goodyear Fabric Mill is Opened at Rockmart, Ga.*

THE new cotton mill of the Goodyear Tire & Rubber Company at Rockmart, Ga., was formally opened on December 12 after actual operations had been started several days earlier. This new fabric mill is the seventh

**Goodyear Fabric Mill at Rockmart, Ga.**

of its kind in the world-wide Goodyear organization. Capacity production from its 50,000 spindles is expected by January 15.

Goodyear now has three cotton mills in the south, the other two at Cedartown and Cartersville. Ground was broken for the Rockmart factory early this year. A short time later the Cartersville mill was purchased and production increased to 50,000 spindles. The Cedartown mill likewise was increased to 50,000 spindles.

## *United Carbon Company Opens New York Office*

AN OFFICE in New York City has been opened at 614 New York Central Building, 230 Park avenue, by the United Carbon Company, Charleston, W. Va., manufacturer of the Kosmos, Dixie and Triangle brands of carbon black. This office will be the headquarters of William W. Higgins, sales manager of the company.

Mr. Higgins is well known to the rubber industry, having previously been connected for 13 years with the Binney & Smith Company, following which he was with the Kosmos Carbon Company until the merger of carbon black companies five or six years ago. He then went back to the Binney & Smith Company, from which firm he went to the United Carbon Company.

The United Carbon Company, which produces about one-third of the world's carbon black, only recently announced that it would sell direct to the trade instead of through sales agents. The opening of a New York Office is one step in the firm's new sales policy, another being an expansion of its technical staff to take care of the service requirements of the rubber industry and to insure uniform grades of carbon blacks.

Oscar Nelson, president of the United Carbon Company, in a recent statement to stockholders declared that carbon black plants in the Panhandle district of Texas, which were under construction at the first of this year, have been completed and are in full operation. Production of carbon black, therefore, has been materially increased, resulting in decreased production costs, he says.

"Market conditions in the carbon industry, partly seasonal," Mr. Nelson states, "have not been entirely favorable and the company's shipments have been somewhat curtailed. The management hopes for improved market conditions in the near future, which will result in increased shipments of accumulated stocks."

The following are subsidiary companies of the United Carbon Company: Kosmos Carbon Company, Crystal Carbon Company, United Producing Company, United Gas Company, Eastern Carbon Black Company, and Taylor-Green Gas Company.

# Rubber Industry Looks for PROSPERITY in 1930

## Leaders Can Find No Real Reason for Pessimism Regarding the Outlook for the Approaching Year

SHORTLY after the recent Wall Street decline and following in the wake of President Hoover's action in calling a series of conferences of industrial leaders in an effort to stabilize industry, THE RUBBER AGE sent a request to the executive heads of the leading rubber manufacturing companies, rubber chemical suppliers, rubber machinery concerns and crude rubber brokers, asking for a short statement on the outlook for the rubber industry during 1930. A generous response was received. With but few exceptions, a spirit of confidence and optimism pervades all these expressions of opinion. From the general tone of the statements, it is apparent that the recent flurry in Wall Street will not leave its mark on the industry in the coming year and the President's action has stimulated the efforts of the individual rubber companies to make 1930 another record year in production and profits.

### No Depression Seen

F. A. Seiberling, president of the Rubber Manufacturers' Association and the Seiberling Rubber Company, who has been named as one of the 60 industrial leaders to form the overseeing committee of the business clinic, recently organized as a direct result of President Hoover's conference, declares that "the rubber industry has no serious fear of economic depression during the coming year, but is preparing to go along after January, doing a better business than it did in 1929, employing more men and maintaining greater production." P. W. Litchfield, president of the Goodyear Tire and Rubber Company, who also attended the Washington conference, is "convinced that no depression can now occur" and voices confidence in the 1930 outlook. His answer to any idea of retrenchment is the announcement that his company will resume operations on January 2 on the regular five and one-half day schedule and that production will be increased from 15 to 20 per cent necessitating the employment of more workers.

The presidents of Goodrich and United States Rubber are particularly optimistic on the probable increase in sales of footwear and mechanical goods during 1930, the market for the latter class of rubber goods being stimulated by the increased building program for public and municipal works and other construction projects.

"The industry has refused to be frightened," says C. P. Hall, a leading chemical supplier to the industry, who is rushing construction of additional facilities in order to meet expected increases in demands.

"No utter reason exists for a pessimistic attitude," says W. O. Rutherford, of Pennsylvania Rubber Company, "and no conservation of initiative is warranted."

### Big Tire Replacements Expected

Practically all officials stress the opportunities which will lie in the tire replacement business. "With the large car productions of 1927, 1928 and 1929, coming in for re-shoeing during 1930," says A. A. Garthwaite, vice-president of Lee, "business in replacements will be the greatest in the history of the industry." William F. Pfeiffer, president of Miller, calls attention to the same point and says, "This business of servicing with replacement tires the 25 million cars in the United States will be available to manufacturers irrespective of other conditions and despite any economic depression."

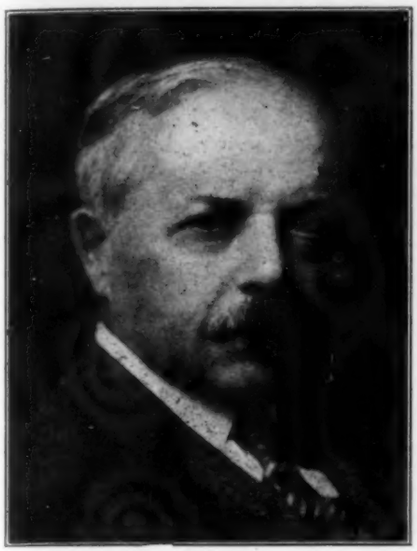
While this spirit of optimism is so pronounced in all of these statements, it is discernable, reading between the lines, that the industry still has some problems to face which may change the rosy-hued picture. F. A. Seiberling, speaking at the Washington conference, said, "We have troubles of our own, and one of them is an intense competitive zeal." The low price of tires and the low prevailing prices for other rubber goods in general, come in for comment and there are many in the industry who believe that prices are now too low for satisfactory profits. C. D. Garretson, president of the Electric Hose and Rubber Company, complains about the unprofitable "plus" business. Scrap rubber prices now prevailing are so low as to discourage collectors and reclaimers may find it difficult to accumulate supplies.

But, on the whole, the outlook for the coming year is very good and from the tone of the following statements as received by THE RUBBER AGE, the prospects must give considerable encouragement to the entire industry.

### *"Sales Volume Will Exceed 1929"*

JAMES D. TEW

## *"Better Business Expected"*



F. A. SEIBERLING

### Looks for Highly Profitable Year

F. B. DAVIS, JR., President, United States Rubber Company, New York City

The rubber industry of the United States will be called upon during the year to furnish many things that have become necessities under modern living conditions. The 120 million people of the United States must be taken care of, and the other countries of the world, with their general advance in wealth, will probably want even more than the 75 million dollars of rubber goods we exported to them this year.

In the United States we start the year with more than 26 million cars that must be kept equipped with rubber tires. The factories, large and small, cannot operate without rubber belting, hose and engine packing; the railroads must have air-brake hose for their safe operation; the growing fleets of aircraft will want tires; the public utilities must buy thousands of miles of insulated wire and cables in order to satisfy the expanding needs of the country; a a large proportion of the new buildings will be floored with rubber; the men, women and children must be protected from the weather by rubber clothing, boots and shoes and must have rubber-soled shoes, golf balls and many other rubber products for their recreations; the hospitals and the homes will need hygienic and surgical equipment to regain and to maintain health.

All of these needs and more the American rubber industry will be called upon to satisfy in 1930. These requirements at present total well over one billion dollars in value. The share of United States Rubber Company in this total is substantial and should increase in 1930, as augmented facilities, now being provided, are completed. I look forward with confidence to a year that will be profitable to the rubber industry and to its millions of customers throughout the world.

### Thinks Business Will Exceed 1929

J. D. TEW, President, The B. F. Goodrich Company, Akron, O.

Forecasts for 1930 indicate that the volume of business done should exceed that of 1929. While it is probable that the production of motor cars will be somewhat lower the coming year than for 1929, the decrease in tire volume applicable to new cars should be more than offset by the increase in sales for replacement use. Past records invariably show that dealers' sales in the tire field are relatively better where car production is not rapidly increasing, and particularly so when there is a decrease. This naturally would mean a larger replacement business for the manufacturer and the dealer as well, carrying with it a proportionately larger profit than is enjoyed when tires are sold to car manufacturers.

With the program for expansions announced by the railroads and other industries, we are looking with confidence toward a substantial volume of business in hose, belting, packing and other mechanical rubber goods.

The rubber footwear business of course is in a large measure dependent upon weather conditions, and from all indications we should have in the winter of 1929 and 1930 ample opportunities to dispose of large quantities of waterproof rubber footwear. This division of our business being a very important one, we are looking forward, as a result of weather conditions, to satisfactory volume sales.

In general, the inventory positions in all industries are sound—very few being over-extended on physical inventories or future commitment. Ample credit is available, and, generally, industrial concerns are looking upon 1930 with optimism. We can see no reason to curtail any expansion programs contemplated, and I believe that the recent recession in industrial activities has very largely run its course.

**THE RUBBER AGE**

***Will publish its Annual Forecast on 1930 Rubber Consumption and Production in the***

**January 10 Issue**

## *"Greater Crude Rubber Demand"*

F. R. HENDERSON

### Expects Increased Sales With Tire Prices Higher

WM. O'NEIL, President, General Tire & Rubber Company, Akron, O.

For many reasons, 1930 is bound to be a good year in the replacement tire industry.

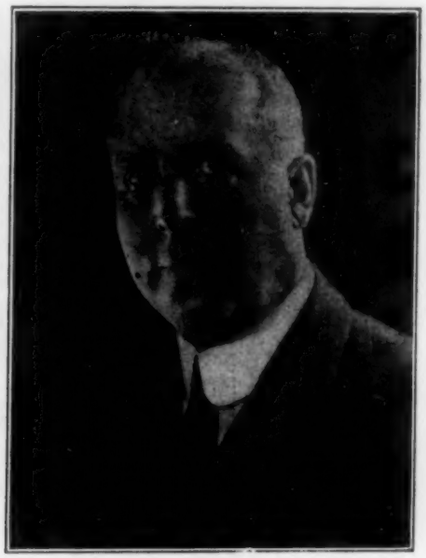
An abnormally large number of new cars were sold in 1929. Temporarily, the cars which these cars replaced were put out of use. As they are put into use, these cars naturally will need new tires most quickly. This business is bound to come in 1930 and will be added to the regular business that may reasonably be anticipated.

The business which our dealers did in November was considerably ahead of that which they did in November, 1928. This is a pretty good indication of the way business is bound to be next year as it came after the stock crash in October.

Tires are now selling at a very low level. Any movement can naturally be expected to be upward. Prices based on a commodity which is selling below the cost of production, such as crude rubber, are bound to correct themselves.

So, we can look for a sales gain the latter part of the year based upon an increased selling price of the product.

## *"No Depression Can Occur"*



P. W. LITCHFIELD

### Sees a Billion Dollar Year

WM. F. PFEIFFER, President, The Miller Rubber Co., Akron, O.

Again in 1930 the rubber manufacturers of this country will do in excess of a billion dollars worth of business. Let's not overlook

this fact when we consider the future. Few industries indeed have such an extensive market already created for them, or can be certain as we are that over a billion dollars worth of business is waiting for them.

The tire renewal business as usual represents the major part of our market for 1930. There are now about 25 million motor vehicles in our country. Most of them are used in the every-day life of the American family as a recognized necessity.

We have found in the past that year in and year out, despite any conditions, these automobiles are used daily and regularly. This is fortunate for us because it means—despite increased life of tires—that about two tires are required for renewals per year for each car in operation.

Besides the excellent renewal tire market all the other lines in the industry have a fair to excellent prospect with a grand total of all of over a billion dollars for 1930.

### Replacement Market Never Brighter

A. A. GARTHWAITE, Vice-President, Lee Rubber and Tire Corporation, Conshohocken, Pa.

Builders of tires for the replacement market and manufacturers of mechanical rubber goods have reason to look towards 1930 with confidence and assurance. Surely the future was never brighter for these branches of the rubber industry. The enthusiastic cooperation extended by all to President Hoover's program for stabilizing industry, insures a more general activity of both labor and capital than has been enjoyed in the past decade.

The business of the Lee Rubber and Tire Corporation, manufacturers of replacement tires exclusively as well as a very complete line of mechanical rubber goods, is so intimately associated with all building and manufacturing operations that it automatically becomes a part of all expansion programs, particularly those emanating from President Hoover's initiative.

More automobiles and trucks will be operating on the highways of America in 1930 than ever before. The large car productions of 1927, '28 and '29 will come in for re-shoeing in 1930, therefore replacement tire manufacturers should enjoy the greatest year in the history of the industry. Crude rubber is stabilized on a free market basis of supply and demand, and this, plus the standardization of merchandising practices and better ethics, will produce gratifying results.

We may confidently expect a much healthier condition both for the manufacturer and the tire merchant than has prevailed since the war.

***"To Be a Good Year"***

WM. O'NEIL

### Outlook Far From Discouraging

J. A. LAMBERT, Vice-President, Treasurer and General Manager The Acme Rubber Manufacturing Company, Trenton, N. J.

The outlook in the rubber industry for the coming year is not at all as discouraging as some of the pessimistic are inclined to believe.

While it is true the nation has been travelling at a rapid pace, even to the point of being charged with extravagance, still the fact remains that we have been gradually adding to our savings and invested funds so that we are today the largest creditor nation in the world. Not only this but our material resources far exceed those of any other nation, and constitute both a foundation and bulwark against the possibility of what in the past have been termed "business panics." We haven't had a business panic since the time when we were a debtor nation, and it isn't likely we will ever have business panics such as prevailed in the past. We will of course have business depressions to a comparatively slight degree, as well as business expansions to a greater degree. The period of buying economy will not last long because our people have become so accustomed to modern necessities and a certain amount of modern luxuries that buying restraint will only continue to the time when the business pendulum swings back toward normal conditions.

Any slight decrease in automobile production will not materially effect tire manufacturers. The number of automobiles and autotrucks now in operation is so great as to insure a tire demand and tire production equal to that of a year or two ago, and on this basis automobile tire manufacturers can expect to operate profitably and to arrange production so that the slight reduction in volume may not injuriously affect profits. The same statement may be applied with almost equal truth to mechanical rubber goods lines.

The outlook for better price levels is not so encouraging and improvement in this direction when it comes may well be heralded as convincing proof that we are on the road to a substantial renewal of industrial prosperity.

### "Plus" Business Presents Problem

C. D. GARRETSON, President, Electric Hose and Rubber Company, Wilmington, Del.

The outlook for 1930 in the rubber industry, as I see it, is one of encouragement. Raw materials have not declined unduly, and there are no large inventories of either raw or manufactured goods which must be liquidated at distressed prices. We have some problems, however, which must be solved. We had these problems, however, before the crash in the stock market, and this crash should only serve to make us get at our problems with the desire to solve them promptly.

I think the largest problem we have to solve in the rubber industry is one of merchandising. We have been selling our manufactured goods to the large buyers, such as the railroads, large industrials, mail-order chain stores and the like, at prices that show but little, if any, profit. This business, which was considered "plus" business in the beginning, has now reached a proportion of the manufacturers' business where it is making very serious inroads into the profitable business.

If we face this problem now and apply the very simple remedy of considering that there is no such thing as "plus" business, then I believe the rubber industry can look forward to the year 1930 in the full knowledge that they will not only have all the business that they can take care of, but that they will make an adequate profit on the business.

We must learn the lesson that no individual concern can profit at the expense of his competitors, and that only as an entire industry is lifted up, can the individuals of that industry prosper.

### No Retrenchment Is Warranted

W. O. RUTHERFORD, President, Pennsylvania Rubber Company, Jeannette, Pa.

There is utterly no reason for a pessimistic attitude concerning the rubber industry's outlook for 1930. Certain fundamental facts far overshadow marginal stock losses.

During the past three years the sale of new and used cars has broken all records. The spring and summer of 1930 should see the great majority of these cars entering the market for their first tire replacements. Therefore, in addition to the normal volume, this influx of new business should swell materially the manufacturing and retail tire sales total.

Rubber is a basic commodity, consequently, demand for it will not be affected, as might that for luxuries and non-essentials.

Business is as brisk as its optimism. As prosperous as its smile. Fundamental business conditions here and abroad are so sound that neither retrenchment nor conservation of initiative is warranted.

Not only is the outlook most encouraging—1930 should be an exceptionally good year for the rubber industry.

### Looks for Increasing Business

J. A. MACMILLAN, President and General Manager, Dayton Rubber Manufacturing Company, Dayton, O.

I anticipate a somewhat slow first three months with increasing business thereafter and a very fine year on the whole. In fact it

(*Continued on page* 320)

# Rubber-Fabric Combinations

## *Discussed at New York Group Meeting*

### Officers for Coming Year Also Elected at Meeting—W. L. Sturtevant Named Chairman, With K. J. Soule as Secretary and Treasurer—Six Papers Read on Rubberized Fabrics

A SYMPOSIUM on the technology of rubber-fabric combinations was held by the New York Group of the Rubber Division, A. C. S., at its third meeting of the year in the Town Hall Club, 123 West 43rd Street, New York City, on the evening of December 16. Dinner and the election of officers for the next year preceded the reading of the six papers offered. The occasion was well attended with over 175 members and guests present.

After short introductory remarks by the retiring chairman, W. B. Weigand, of Binney & Smith Company, W. H. Cope, of R. T. Vanderbilt Company, the retiring secretary and treasurer, reported $250 more in the funds of the Group than what it had when first started and suggested that in view of the financial difficulties being experienced by *'Rubber Chemistry and Technology,'* that this sum be turned over to it. A motion to that effect was made and seconded and carried unanimously.

The nominating committee then introduced its recommendations for officers for 1930, naming W. L. Sturtevant, as chairman, and K. J. Soule, as secretary and treasurer. The election of these new officers was unanimous. Both of the new officials are connected with Raybestos-Manhattan, Inc., Passaic, N. J.

During the evening entertainment was afforded by the "Vulcanizers of Manhattan" Quartet, with humorous songs aimed at various members present. W. H. Grote, a member of the Group, also addressed the members in a humorous vein and performed two startling tricks to the amusement and bewilderment of the gathering.

The papers presented were closely followed by those present and a brief discussion, chiefly centering around Mr. Dinsmore's paper, followed the reading of the last paper. The retiring chairman, Dr. Weigand, then briefly thanked the members and past officers for the cooperation he had received during the year and adjourned the meeting.

Abstracts of the papers follow in the order in which the papers were presented:

## Abstracts of Papers

### Rubberized Balloon Fabrics

R. P. DINSMORE, *Goodyear Tire and Rubber Company, Akron, O.*

CONSIDERATION was only given to the treatment of fabrics for envelopes, gas-cells and balloonettes in spherical balloons, non-rigid dirigibles or "blimps" and rigid airships of the *Los Angeles* type. The construction of the different classes of balloon fabrics was discussed and described by charts and actual samples displayed. The treatment of the various parts of the fabrics was also described, together with some of the processing peculiarities. Remarks were made about the functions of the different fabrics now in use and some information added about the compounding of the rubber. Particular attention was given to the use and treatment of goldbeater skins. This is the outstanding development in rubberized balloon fabrics but its present cost at $5.00 per square yard, presents a problem.

Well milled pale crepe has been deemed the best crude rubber to be used. White rubber is being used experimentally but its efficacy is still questionable. Tung Oil type of varnish is used on the finish. In general, compounding principles in connection with balloon fabrics have been worked out on an empirical basis and the question of their soundness is still doubtful.

---

### Rubber and Pyroxylin Fabrics

K. E. BURGESS, *The Zapon Company, Stamford, Conn.*

IN combining the use of rubber with that of pyroxylin for roofing materials for automobiles, two essential features of each are sought. Pyroxylin compounds are chosen for their permanence of lustre and for the ease in which a good grain can be given. Rubber is chosen because of its flexibility and its waterproofing properties. The technique of combining these two materials is as follows:

A rubber compound made in the usual manner on mills or a Banbury mixer is dissolved in churns in gasoline. The fabric is given the necessary coats of the rubber cement and the two fabrics are then doubled together. Pyroxylin is dissolved in suitable solvents in the mixer and pigment and a non-drying oil is added to give color and flexibility. The pyroxylin dope is spread on the doubled fabric in spreader machines. The resultant fabric is then embossed and given a finish coat of pyroxylin and varnish.

The rubber stock must of necessity be cheap and have good solubility in gasoline. It must be a non-vulcanizing stock, as the solvents in the pyroxylin coating seemed to have a marked tendency to cause any free sulfur to diffuse through the pyroxylin compound, appearing on the surface as a very decided bloom. No mineral rubber can be used for the same reason. Since vulcanization is impossible, care must be taken in the selection of the components to give the best possible aging.

The pyroxylin dope has very little adhesion upon the rubber compound, and it is necessary that care be taken in spreading the rubber compound to avoid striking through. The surface of the cotton to be coated with dope must be absolutely free of rubber compounds. The fabrics usually used are drills and sheetings and when these are doubled together the resultant tensile strength is much greater than the sum of the tensile strengths of the two fabrics taken separately.

---

### The Strength and Stretch of Double Texture Rubber Goods

T. M. KNOWLAND, Development Engineer, *Boston Woven Hose and Rubber Company, Boston, Mass.*

RUBBER goods are divided into several classes of which the rubber textile group are probably the most important. In the various combinations the textile fibre is used to give strength to the

product at the same time retaining as much resiliency and stretch as may be necessary for the intended use of the processed fabric. It is difficult to meet the conditions of strength and stretch imposed on plied fabrics of this sort without sacrificing a high percentage of their available strength and a considerable waste in materials can be traced to this difficulty.

It is possible to calculate approximately the correct stretch properties of the various fabrics which are used in double texture goods so that the product will have the desired characteristics without undue sacrifice of raw materials.

Charts and photographs were shown which illustrated the waste due to incorrect design of double texture fabrics and demonstrated a proposed method for the design of these materials. The work outlined took into account the methods of rubber application and its effect on the properties of the finished product.

## Rubber Fabric Combinations as Used in Rubber Footwear

A. R. Davis, *Firestone Footwear Co., Hudson, Mass.*

THE paper discussed, 1. The general types of both woven and knitted fabrics and their general uses; 2. The methods of combining fabric and rubber; 3. The reasons for two general types of fabrics being used in the industry; 4. The effect of heat, rubber and curing on the strength of typical fabrics.

The types of fabrics used in footwear manufacturing can be classified into woven fabrics (sheetings, cashmerettes, etc.) and knitted fabrics (as netts, jerseys and fleeces). The methods of combining fabrics and rubber are: 1. Friction (calender); 2. Skim and calender coat; 3. Bank skim or calender coating with a bank; 4. Spreader coating.

The rubber-fabric combinations are classified as frictions, combinations and coated fabrics (for linings, insoles and outside materials). Brief descriptions of the method of manufacture and uses of each type were given.

Woven and knitted fabrics have distinctly different working and reinforcing qualities as shown by the fact that 2.66 sheeting used in leg forms and heel pieces was found to have a warp crimp of 7.8% and filler crimp of 9.4% compared to 60 to 70% and 110 to 120% for 4½ double thread nett. Accordingly the woven fabrics are used where reinforcement is needed and the knitted fabrics are used wherever flexibility is desired.

The effect of heat and rubber on the strength of typical fabrics (2.66 sheeting and Black Wool Jersey) showed that cotton and wool fabrics showed no loss in strength after being cured.

## The Effect of Rubber Proofing Processes on the Tensile Strength of Fabrics

R. R. Lewis, *Vulcan Proofing Company, Brooklyn, N. Y.*

CONTROL tensile strength tests on cotton and rayon fabrics before and after coating were studied in order to determine whether or not sufficient information was available to offer a basis for selecting fabric specifications which would tend to produce more satisfactory constructions.

The fabrics tested were cotton lawn, sheeting, duck, drill and flannel, rayon and cotton mixtures and all-rayon fabrics. The proofing processes involved were: Spreading, spreading followed by calendering, frictioning followed by calendering, impregnation followed by spreading, and various methods of curing; vapor cure, liquor cure, dry heat and open steam. The tests were run entirely on uncoated fabrics and finished fabrics; no tests at intermediate stages of processing were available. Tests were made on a Scott machine by A. S. T. M. grab method except that a speed of 20 inches per minute was used, instead of the usual 12-inch speed.

The results indicate that lighter-weight, higher-count fabrics increase in strength after proofing more than heavier, low count fabrics. The increase is always greater in the filler than in the warp. The manner of coating shows greatest difference in effect although weight and quality show difference in some cases. The nature of the weave has great effect, such as filler threads of drill. Rayons are not easily affected by coating due to the smoothness of fibre. Weave of rayon fabrics also influences strength increase. Coating both sides shows greater increase than one side. Coating a napped surface produces rather slight improvement.

Filler strength of fabrics for specific purposes should be judged according to the manner of coating to be employed and the weave.

## Rubber-Textile Combinations with Reference to Transmission Belting

W. L. Sturtevant and D. P. Weisberg, *Raybestos-Manhattan Co., Passaic, N. J.*

THE paper covered the impregnation of fabrics, the durability of combination, aging tests and comparison between volume cost and volume deposition. Slides showed these various operations using different weight fabrics.

Under the first division, impregnating or frictioning of the fabric, the following were discussed: (a) different compounds, showing effect of crude rubber content and fluxes; (b) different sources of fabric supply for either 28, 32 or 36 ounce weights, showing differences due to different sources, and inconsistency of these differences; (c) different weights of fabric showing relation between 28, 32 and 36 ounce fabrics; (d) physical condition of textile material, moisture content, and temperature; (e) physical condition of rubber batch, breakdown, temperature and speed of calendering.

The durability of combination as a function of thickness of rubber layer, showing effect of varying the number of plies of skim on friction tests, flexing cycles, and dynamometer life was also discussed. The durability of combination as a function of compounding covered flexing tests on unskimmed belts of different compounds and friction tests of different compounds.

Artificial aging tests showed varying results depending on the initial state of cure and the length of cure.

The last matter discussed was a brief comparison between volume cost and volume deposition.

## I. R. I. Holds Annual Meeting

THE sixth annual meeting of the London & District Section of the Institution of the Rubber Industry was held on November 18. The chairman, J. H. Blake, F. I. R. I., stated that the general meeting and conference of the Institution would be held on January 6, 1930.

The membership of the Institution is still growing satisfactorily, and now totals 1,165, in comparison with 1,104 in November, 1928. The London section has increased by 33 members.

The outlook for the industry was afterwards discussed by H. Eric Miller in a very carefully prepared paper. Mr. Miller expressed the view that the production during the next few years would not be more, but perhaps less than in the present year; that world supplies were not large in relation to consumption; and that a reasonable price stabilization would be welcomed by manufacturers no less than by producers.

The exceptionally large output of rubber in 1929, according to Mr. Miller, was due to lighter tapping in Malaya and Ceylon during the six years of restriction in force in those districts, and it may be some years yet before the output from them can be looked on as normal. During the current year Malaya will produce about 440,000 tons; the yield per mature acre will average about 400 lbs. on the estates and 430 lbs. on native holdings.

He expressed the belief that in Malaya the output of native rubber is now at its maximum, and when bark reserves are exhausted it must show a material decline; that in the Netherlands East Indies native output during the next few years will largely depend on whether the price is sufficiently high to attract labor.

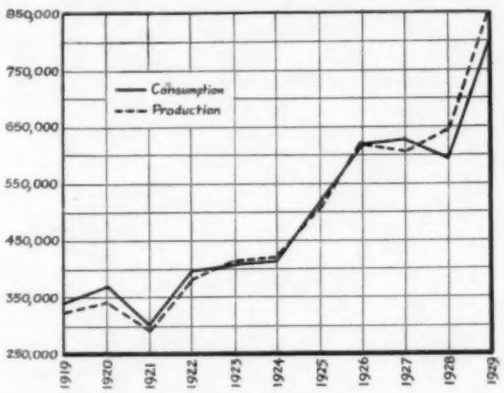
Leaving out of reckoning the Dutch native output, Mr. Miller contended that the production elsewhere is unlikely to show much increase in the next few years, and it is possible that the output in 1930 and 1931 will be less than in the present year; the heavier incidence of tapping today, the greater the contraction in output two or three years hence.

# *Looking at the Year 1929 in Retrospect*

## Review of the Year Shows Many Records Broken—Production and Consumption of Crude Rubber Exceed All Predictions—Year Has Been Characterized by Expansion of Plants and New Construction

FOR THE first time in many years both the crude rubber industry and the rubber goods manufacturers can be said to have enjoyed, during 1929, a fairly normal year. Industrial activities were maintained at high speed but production schedules which were at very near capacity levels for the first 8 months levelled off considerably towards the end of the year. The price of crude rubber was fairly stable during the twelve months and its relatively low level was an added advantage to the manufacturing industry. At the same time the low price of crude did not slow up the heavy production from the estates and native holdings, and there were ample supplies available at all times. In both the consumption and production of crude rubber the figures for the year have far exceeded the most optimistic predictions.

In April, THE RUBBER AGE went so far as to predict that the total world consumption of crude rubber would reach 756,000 tons, a figure much higher than was ventured by the leading rubber authorities. Latest statistics would now indicate that even that total will be surpassed and may reach 820,000 tons. The production of crude rubber, at the same time, was predicted by THE RUBBER AGE to reach 810,000 tons, another figure far in advance of the most sanguine authorities, but based on actual shipments from all producing centers, the figure for the year will probably reach 850,000 tons.




**World Production and Consumption of Crude Rubber Showing the Great Increase During 1929**

The last quarterly figures of the Rubber Manufacturers' Association, are, of course, not yet available but the indications are that in volume of unit production and unit sales, 1929 will establish another record. Due to lower unit prices, however, the total sales value may fall below previous records.

Prices of tires were the lowest in the history of the industry and keen competition together with the inroads made by mail order houses, cut considerably into the profits of tire manufacturers in spite of record unit sales.

The year has been characterized by considerable expansions in plant capacities and in new building construction. A number of the larger companies have been especially active in decentralizing their production through the building of branch factories in the south and particularly on the Pacific Coast and Los Angeles is fast becoming a rival of Akron as a rubber manufacturing center. Further expansions have been made during the year on a number of the foreign plants of American manufacturers and in other cases manufacturing rights or selling arrangements have been concluded with foreign producers. During the year, one American company, the Goodyear Tire & Rubber Company, has planned the erection of a tire plant in Argentine. This policy of expansion has not been confined to rubber manufacturers and a great number of the chemical suppliers to the industry have also widened their activities and increased their productive capacities.

Within the manufacturing industry itself there has been a number of important reorganizations and consolidations. Notably among these can be mentioned the reorganization of the United States Rubber Company since the acquisition of its control by DuPont interests early in the year. The most important consolidation was the merger of Hood Rubber Company with B. F. Goodrich Company. Second in importance was the combination of the Manhattan Rubber Manufacturing Company, Raybestos Company and the United States Asbestos Company.

Other mergers formed included the American Tire and Rubber Company, which was bought by Fidelity Tire and Rubber Company; Lambert-Raritan, Inc., a combination of the Lambert Rubber Company and Raritan Rubber, Inc.; Bucyrus Rubber Company purchased by Swan River Tire Company; C. O. Tingley & Company and Reliance Rubber Corporation, forming the Tingley-Reliance Corporation; Erie Rubber Company purchased by Swinehart Tire and Rubber Company; and the alliance of the Southern Asbestos Company with the Thermoid Company.

This tendency to combine has been also apparent amongst the chemical and machinery concerns supplying the rubber industry. The American Cyanamid Company recently absorbed Kalbfleisch Corporation and E. I. duPont de Nemours and Company had taken over the Grasselli Chemical Company. The Monsanto Chemical Company recently acquired Rubber Service Laboratories Company.

From a financial point of view, the year 1929 has been favorable to the majority of the leading manufacturing companies and far better balance sheets will be reported at the end of the year than those covering the industry's activities during 1928. Four of the "Big Five" rubber manufacturers finished the first half of 1929 with a combined net profit of $18,064,596, whereas in the first six months of 1928 the same companies suffered a combined net loss of $20,068,091. These are the Goodyear Tire & Rubber Company, United States Rubber Company, B. F. Goodrich Company, and Fisk Rubber Company. The Firestone Tire & Rubber Company ends its fiscal year on October 31 and in that period for 1928-1929 earned $7,726,870 as against $7,072,014 for 1927-28.

Certain of the smaller companies, however, have not fared so well. In the turbulent situation attendant upon the

deflation of crude rubber prices last year, they were able to show profits through careful "hand-to-mouth" buying, while the larger companies suffered through their heavy commitments in the crude rubber pool. This year the Mohawk Rubber Company and the Seiberling Rubber Company have suspended their dividends on the common stock, and the Norwalk Tire & Rubber Company has reported a loss where it made a profit last year. The year has seen the affairs of several small manufacturers carried into the bankruptcy courts, including those of the Swinehart Tire & Rubber Company, the Columbia Tire & Rubber Company, and the Admiral Tire & Rubber Company.

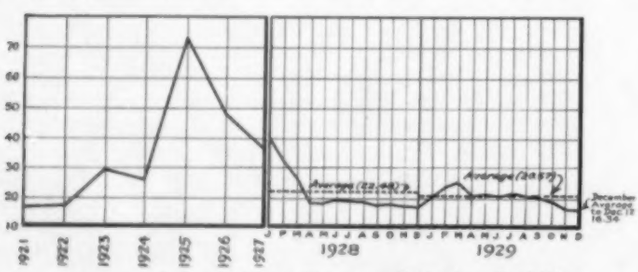
The collapse in Wall Street early in November caused a tremendous shrinkage in the value of rubber company securities. Practically all these stock issues have come back considerably from their extreme low but the paper losses in the market value of the securities were estimated at around a billion dollars. The effect of President Hoover's action in calling conferences of industrial leaders, however, and the resultant determination on the part of all business executives to maintain industrial stability has gone far to discount the bad effects of the collapse and has stimulated rather than depressed the industry, and is spurring it on to even greater activity, which will be reflected in 1930.

The year 1929 saw the demise of the Rubber Institute, headed by General Lincoln C. Andrews, and the reorganization of the Rubber Association of America under the new name of the Rubber Manufacturers' Association. The consolidation of the two organizations was recommended in January by General Andrews, in the belief that the purposes of the Institute and the work of the Association would be thus served more efficiently and economically than by continuing the operation of the two organizations separately. The 'standard warranty' for tires was virtually the only thing achieved by the Institute and its program for putting an end to 'profitless prosperity' by means of 'co-operation in competition' apparently failed. As a result of the reorganization of the old Rubber Association, rubber reclaimers, scrap rubber dealers and all others not actually rubber goods manufacturers were denied membership. A direct result of the barring of the reclaimers from the new Association soon led to the formation of the Rubber Reclaimers' Association in June.

### Stability of Crude Rubber

The Rubber Exchange of New York completed its fourth year of successful operation under the able administration of its president, F. R. Henderson, who has held the office since the formation of the Exchange. This was the first year in which the Exchange has operated in a free crude rubber market. Contracts in rubber futures to the extent of 470,330 tons valued at approximately $217,000,000 were dealt in during the fiscal year which ended August 31.

In the crude rubber market, the year has been notable for the relative stability in price levels. Whereas in 1928 the spot price for rubber at New York fluctuated all the way down from 41¼ cents to 17 cents a pound, the current year has seen only a relatively narrow price range of from 26⅞ cents to 15¾ cents a pound. The average price for the year up to December 12 has been 20.57 cents a pound as against 22.48 cents in 1928. This is the lowest yearly average price recorded since 1870 and probably in the entire history of the industry, with the exception of 1921 and 1922 when the abnormally deflated prices caused the setting up of the Stevenson Restriction Act.




**Prices of Spot Rubber Showing Relative Stability During 1929**

With the fear of excessive shipments of accumulated rubber from Malayan plantations still hanging over the trade, the commodity opened the year at a price of 18⅛ cents a pound. When it became apparent that the tremendous increase in American and foreign rubber consumption to keep pace with the automobile industry would absorb practically all of this "surplus" rubber, prices naturally sought higher levels, reaching a peak on February 26 of 26⅞ cents a pound. After this early enthusiasm had worn off and the tire industry saw that it would have to slow down and wait for consumer demand to catch up with its record breaking production, the price for the commodity slowly but steadily fell back to the point from which it had started on the first of the year. In November and December the effect of the stock market debacle carried rubber to the lowest quotations in history, with the exception of the period from February to September, 1922.

### Central Selling Schemes Proposed

While the market for crude rubber has been relatively low and stable and thereby giving a distinct advantage to the rubber goods manufacturing industry, the very lowness of its price has been a source of mingled worry and chagrin on the part of British and Dutch producers, with the result that talk of a revival of restrictive measures has gone to the point of actual recommendations being made by the growers associations. The old difficulty of the Dutch and British ever getting together on any one plan still persists, however, and it is extremely doubtful if any scheme is ultimately adopted. The Dutch Plan emanating from the Committee for the Protection of Rubber Producers' Interests, proposed a central selling association which would control an annual output of 45,000 tons. The British proposal by the Rubber Growers' Association is somewhat similar but would virtually control 80 per cent of the British companies' output. The uncertainty of securing any cooperation from the native rubber growers in both the Dutch and British areas is the stumbling block to the adoption of either scheme.

Another attempt at a stabilization of crude rubber prices was also made during the year by an American group of manufacturers headed by F. A. Seiberling and Edgar B. Davis, and conversations were held in Europe with British and Dutch interests, but no arrangement was definitely arrived at.

Scientific research of great value has continued throughout the year in the field of rubber chemistry and technology. The various local groups of the Rubber Division of the American Chemical Society have been particularly active and papers delivered at their meetings have been valuable contributions to the industry. In addition to the active groups at Akron, New York, Boston and Los Angeles, the year saw the formation of a fifth group at Chicago. The annual meeting of the Division, held in September at Atlantic City, N. J., was a pronounced success.

Great strides were made during the year in new applications of rubber and several new uses were developed. The widening application of rubber for airplane parts, in aviation in general and in automobile construction are notable examples. Rubber tile flooring sales greatly increased. The direct use of latex has also been expanded in many lines and many new applications of dispersed reclaimed rubber have been found.

# Toxic Substances *in the* Rubber Industry

## PART VI

*By* P. A. DAVIS, A.B., M.A., M.D.
*Assistant Medical Director, Goodyear Tire & Rubber Company*

## LEAD *and* ITS COMPOUNDS

THIS subject is of vital importance not only to those engaged in the manufacture of rubber products which contain lead, but also to those who use lead or any of its compounds in the manufacture of finished products, such as glass, porcelain and tile products, rubber goods, paints, lead cables, lead products, some dye compounds and sizing materials, and storage batteries.

The most common forms of lead used are the following:—metallic lead, lead alloys, red lead $Pb_3O_4$, litharge PbO, white lead $Pb_2CO_3$, lead sulphide PbS, lead sulphate $PbSO_4$, lead chromate $PbCrO_4$, and the soluble salts of lead.

It does not make any difference what product of lead is used the symptoms of absorption and poisoning are the same, but the length of time that it takes symptoms to develop depends upon the nature and concentration of the compound used. However, in some lead compounds such as lead chromate, two distinct processes may be present, one from lead and one from chromium.

For the past 10 years I have examined men who have worked with various lead compounds and with metallic lead in molten form.

The principal lead compounds used in making rubber are: litharge, basic sulphate, basic carbonate, and red lead; litharge has probably replaced most of the other forms of lead. Much metallic lead is being used in a molten state to vulcanize and cure hose.

The lead compound used is ground, pulverized, and sifted; then mixed with crude rubber, sulphur and other compounds, and put in the mills which mix this to a paste.

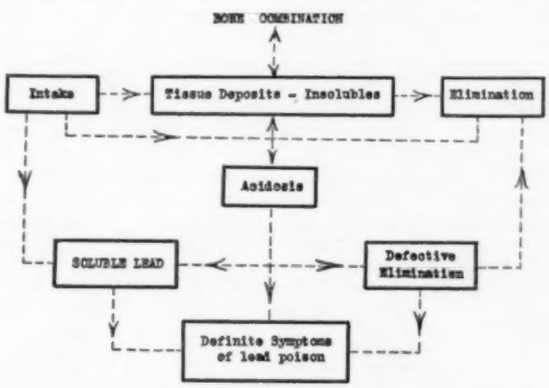
The handling of the lead compound in this process seems to be the main source for lead absorption, as we have seen very little lead absorption sufficient to produce any definite recognizable symptoms after the rubber is cured. Dr. Alice Hamilton reports several cases under observation for lead poisoning in buffers. A buffing operation is an operation that occurs in the course of the construction of a tire or other rubber products, in which the rough tags from curing are removed by fabric or grinding wheels which reduce the rubber to a finely divided state. The men doing this operation were examined and observed, but no evidence of lead poisoning was found. The reason for this is that the protection afforded these workers is excellent, another is that the lead is so closely combined and the rubber particles so insoluble that absorption from the skin is negligible. By wearing respirators the mode of entrance by respiration is closed. The different percentages of lead in the different compounds as made by the different rubber manufacturers, has to be considered as a variable. There is no reason why lead poisoning should not develop in certain instances where the lead content of the rubber being buffed is high, and the worker inhales or partakes of this dust during his meals. I personally believe that most of the lead poison cases are due to carelessness and neglect on the part of the individual worker; for at the present time, with a well organized industrial concern, and an efficient Safety First and Medical Department, the worker has the best of protection and if he will religiously follow instructions, lead poisoning can largely be eliminated.

The mode of entrance is almost entirely limited to the skin, respiratory, and gastro-intestinal tracts. I have seen one case of lead poison from using lead solutions on Dermatitis Veneata, and one case in which an astringent injection per rectum, repeated, has caused beginning lead poisoning symptoms to develop. Disregarding exceptional cases, the most common modes of absorption are the alimentary canal and lungs.

Professor Lehman of Wurzburg has experimented on the inhalation of lead dust, and shows that only 12% of the dust inhaled reaches the lungs; the other is caught in the naso-pharynx or mouth and is swallowed. That portion which enters the lungs is less active than that which gains entrance to the stomach; for in the stomach it is converted into chloride which becomes more soluble the higher the temperature of the reaction; while that in the lungs is probably converted into the carbonate before it can pass into combination with the blood serum, in the form of an albuminate of lead.

Albuminate of lead is somewhat insoluble, and is deposited in the tissues where it may remain until a slight acidosis develops and it is again thrown back into solution; this in one way helps to account for the prolonged period during which some individuals have a lead line, but no other definite symptoms. Lead has an accumulative action, and this action can be hastened in the human mechanism by the producing of acidosis.

The excretion by the skin is very small. This is increased if the skin secretions become acid, during a general acidosis and when the kidney function is reduced by cloudy swelling, amyloidosis and passive congestion. In some cases the elimination is equal to the intake plus that lead combination which is deposited in the tissues as insoluble and inert, viz., the lead line which is a sulphur derivative. The following diagram represents the physics-chemical reaction that takes place.




If the elimination is normal, no acidosis is present, and the amount of intake of lead compounds is at a low concentration the human body can combat it for some time without any definite symptoms. If the intake concentration is reduced in the body by precipitation of insoluble compounds the symptoms do not develop rapidly; for example, a worker takes into his body 2 mg of lead per day, ½ mg is precipitated as PbS in a lead line, 1¼ mg is eliminated by the kidneys and intestines and the other ¼ mg remains as a soluble lead salt, some of which may later be converted into an insoluble compound. At this rate it will take some little time to develop any acute symptoms, other than the lead line. The whole process is one of a chemical reaction with the precipitation of an insoluble com-

pound of lead. If we had some means of keeping the lead out of solution in the body very little harm would be done other than that of the mechanical deposit in the tissues.

The main point an investigator from the medical side of this problem is interested in is how to determine when this reaction starts so that any seriousness may be avoided. As yet the author is not in a position to say anything definite.

Urines have been examined without any definite results. Lead in large quantities can be found in the urine, but the present analytical methods for determination of lead, while very accurate, is very lengthy and laborious and does not permit of its use as an early and quick diagnostic unit. The faeces also contain lead but again we are confronted with the same problem as in the urine, as this is a chemical laboratory test and not a clinical bedside test, for it takes hours, and equipment and is not available for the physician who must see these men and by some simple test be able to say whether this or that man should be transferred as he is beginning to have lead absorption. For research work and exact analytical work these tests are very good but the human element enters into the problem and in some cases we do not have time for this. One case is recorded that was operated on for appendicitis and this could have been avoided if we had a quick accurate test, preferably one in which the blood and urine are involved. A new color reaction for traces of lead in the body fluids is being worked on with the idea of using it as a determining factor but its success will have to be reported later. Elimination by the skin does not present any definite evidence that might be used as a diagnostic point other than that it can often be found in the perspiration in small quantities. This is a variable factor. The finding of lead is an easy matter after we are aware of the individual having lead poisoning by the presence of the developing symptoms, but this is not what we want. We want a means of determining the presence of soluble lead long before the concentration reaches the point of producing symptoms.

J. Russell (Eng. Jour. State Medicine, 23-1915) says "no interdependence exists between the percentage of hemoglobin and the number of punctuate red cells or punctuate basophilic erythrocytes."

Punctuate basophilia is evidence of lead poison when over 300 such cells are present in 1,000,000 red cells. This shows toxemia and according to J. Russell the worker should be removed from contact with lead, although in an apparently good healthy condition.

The chemical analysis of blood is lead poison as done by G. Meillerre (Jour. Phar. Chim. 7-26) is not applicable as a quick diagnostic point as the process is a lengthy procedure.

Carcanague and Maurel (Compt. rend. Soc. Biol. 74-337-9) show that in general the decrease in hemoglobin is proportional to the amount of lead injected. Rabbits were used in this instance. This means constitutes a means of early detection of lead poisoning.

Lieberman tests show that the resistance of the blood cells in rabbits is increased by the administration of lead salts. Marvin D. Shie (Jour. A. M. A. Mar. 25, 1921) (76-No. 13-835-42) does not lay so much stress on basophilic degeneration and anemia as a diagnostic point as others. Mononuclears is taken as a better diagnostic point. He gives the lead line as 90% diagnostic.

These statements prompted the author to do some blood examinations. All individuals have been working in lead compounds for at least six months and some have been working as long as ten years.

The predominant feature in the blood work is the presence of the punctuate basophilic red cells, mononuclears and a secondary anemia. These factors are readily discovered when they first develop if monthly blood examinations are made. Basophilic degeneration of red blood cells may be due to the following conditions:—

1. Pernicious Anemia
2. Leukemia
3. Chronic Lead Poisoning
4. Carcinoma
5. Sepsis
6. Malaria
7. Tropic Anemias
8. Conditions associated with the destruction of red blood cells
9. Chlorosis
10. Severe Hemorrhages
11. Chronic Aniline Poisoning
12. Some intestinal parasites
13. Occasionally in healthy individuals due to absorption of Hematin

In very severe conditions of lead poisoning they sometimes disappear and then reappear on improvement. This condition would lead one to believe that it is a regenerative process, but on the contrary, new young cells are thrown into a state of basophilic degeneration by being bathed with a soluble lead compound circulating in the blood stream.

For purely diagnostic purposes we may say that 85% of cases of lead poisoning can be diagnosed by the punctuate red cells but this is not what the industrial physician wants. He wants a quick, reliable test that will be positive at the beginning of the absorption of lead. It becomes quite a problem when you have 200 to 300 men to examine every three or four months who are in contact with the various lead compounds and you must say whether this man should be transferred from his work. From the blood picture we are able to make a diagnosis of lead poison but we are not able to state at what stage the reaction has reached, but it is certain that it is not the beginning of the reaction. The mononuclear leucocytes are increased but they are a variable as are the punctuate reds, which variation we would expect in any pathological condition in which we are much at sea as to when the condition actually started, previous to any symptomatology.

The blood picture in leal poisoning is related thereto as the Wasserman reaction is related to syphilis. It is only one of the links of evidence to make a diagnosis. Many a case of syphilis has been wrongly diagnosed because the Wasserman report was negative and vice versa. If we are to make use of the blood picture as a diagnostic point in lead poisoning it must be in association with the clinical symptoms and by the time these develop the stage is passed to quite a degree when removal from lead compounds should have taken place. As yet I have been unable to find any quick reliable method whereby I am able to definitely state that this worker should at once be transferred except in those cases where the physical and chemical symptoms are so definite that it does not require any hesitation on the part of the medical examiner. The author is working on several tests with the object in view that will enable him to say that this man is in the stage of beginning absorption and should be removed. At this time no definite or absolute statement can be made as to how to determine when we are approaching the point when symptoms begin to develop, but we rely on the following procedure:

Periodically all men working in the compound and mixing rooms, lead refiners and lead presses, chemical and mill rooms are examined.

After the examination has been completed and all clinical examinations are finished, the final decision as to whether removal from contact of lead should be made or not, depend upon:—

1st. Differentiation of the symptoms
2nd. Presence of lead in the urine, faeces or blood serum
3rd. Presence of lead line. The lead line is due to the deposition of lead sulphide in the tissues near the border where they come in contact with the teeth. This sulphide of lead is probably formed due to the liberation of sulphur compounds at the gum margins or to disintergration of nuclear material, especially marked around the gingival margins of the gums.
4th. Presence of basophilic degenerations of red cells at least 1 to 10 fields. 100 fields should be examined.
5th. Differentiation of the causes of basophilic degeneration.

Should positive evidence be obtained the worker is either transferred or placed under treatment and not replaced where there is any possibility of lead contamination until he is free from lead line, basophilic degeneration and secondary anemia.

When this point is reached and passed we have a condition as shown in the chart shown on the previous page in which soluble lead is increasing and the other factors of the equation is inhibited and the symptoms develop.

The following symptoms are fairly constant and usually develop as they are tabulated but not always.

(1) Lassitude.
(2) Gastro-intestinal uneasiness-eructations.
(3) Nervousness—tremors.
(4) Constipation—lead line.*
(5) Abdominal pains.*
(6) Headache
(7) Muscular weakness—slight incoordination.
(8) Loss of appetite—fetid breath—occasional retention of urine.
(9) Thirst.
(11) Joint or Arthritic pains (Plumbic Arthralgia).

*(N. B... *The lead line is an indefinite symptom as it may develop early in an individual without very little other disturbance and persist for several years without any acute symptoms developing, while again we may have a very serious acute condition develop and a lead line can not be found. Gum margins around carious teeth usually show the first indications of a lead line.)*

(12) Beginning weakness in the wrists (early stages of wrist drop).
(13) Severe headache, paresthasias, anaethesias.
(14) Wrist drop, transient blindness, optic atrophy, taste and sense of smell disturbance.
(15) Epileptiform convulsions.
(16) Paralysis.
(17) Encephalopathy (Plumbic).

The action of lead is accumulative and may show symptoms of a very serious nature after the lapse of several weeks during which time the worker has not noticed any slight symptoms. Whenever the equilibrum of intake and elimination is disturbed by an acidosis more soluble lead salts are thrown into solution in the circulating body fluids. The question to be solved is "When is the point of beginning poisoning approaching" and how can we definitely determine this point. From my experience there is at present no definite scheme or tests whereby this can be done absolutely in the pre-symptom state.

If we had an absolute reliable diagnostic test for the early recognition of beginning lead poisoning, (the pre-symptom stage) there would be little use of a curative treatment in 90% to 95% of all cases. This we have not, therefore we must have a preventative and curative treatment.

**Preventative Measures**

(1) Healthy individuals only should work in lead compounds, especially eliminating nephritics, tuberculars, anemias, sclerotics, neurotics, and in most cases females, as lead in females has an influence on the child-bearing organs and oftentimes will produce abortions, premature births and defective offspring.
(2) Normal gastro-intestinal functions should be kept established.
(3) All workers should wear respirators in dusty places as in the grinding and sifting rooms. Protection of the hands and exposed surfaces by gloves and proper clothing.
(4) Absolute cleanliness when eating as much lead is introduced with the food.
(5) Removal of all possible sources of lead poison.
(6) Proper ventilation by means of suction fans.
(7) Personal introduction by the workers, foreman and the physician in charge of this work.

**Curative Measures**

(1) Removal from source of contact.
(2) Elimination by kidneys, bowels and skin. Give cathartics, diurectics and baths.
(3) Chemical-producing insoluble lead compounds in the intestinal tract which are eliminated as such. Give sulphides, chiefly calcium sulphide, in one grain doses (TID) or the iodides in the form of potassium iodide, minims five to ten (TID).
(4) Relief of pain in the abdomen:
  (a) Catharsis—enema
  (b) Monosodium sulphate one grain (TID)
  (c) Magnesium sulphate and potassium iodide
  (d) Gastric lavage with magnesium sulphate
  (e) Narcotics
(5) General supportive treatment.
(6) During convulsions, enema s. s. or magnesium sulphate, followed by a retained enema of bromides and chloral hydrate.
(7) Electrical tube baths (ionization).
(8) Diet
(9) Morphine or opiates if necessary, followed later by a drastic cathartic.
(10) Method of Aub, Fairhall, Minot and Reznikoff which has been found very effective.
(11) The intravenous use of Sodium Thiosulphate solution.

**Conclusions**

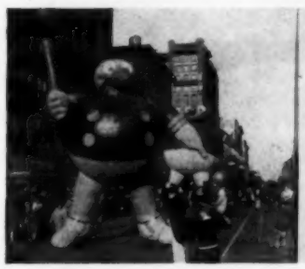
There is a definite blood change in all cases of lead poison and this is about 85% diagnostic at the end of the pre-symptom stage. It is a variable and manifests itself as an anemia with a preponderance of punctiuate basophilic red cells and an increase in the mononclear leucocytes. Some very definite cases of lead poison with a well defined lead line does not show this condition to exist. The urine in the majority of cases shows lead late in the condition but like the blood changes are not valuable as a quick early and positive diagnostic point.

As yet there is no definite early diagnostic test whereby we can say: "This man must be removed from lead work or he will soon develop marked symptoms," except to rely on basophilic degeneration at least 1 to 10 fields or to use the micro-chemical method.

It is desirable to have a color test of some kind that is quick, accurate and positive. One that can be used with the urine and blood serum. The author expects to continue to work on this problem and any promising results will be submitted in a later paper.

## Balloon Caricatures

IN ITS annual Thanksgiving Day parade down Broadway, New York City, R. H. Macy & Company featured a number of huge replicas of famous characters taken from the comic strips, made by the balloon department of the Goodyear Tire and Rubber Company, Akron, O., and filled with helium gas. All of the characters were made of one-ply balloon fabric such as is used in the



manufacture of advertising balloons. They were painted at the New York studio of Tony Sarg. The character depicting old Captain Katzenjammer, shown in the accompanying illustration, was 25 feet high, while Barney Google's horse, "Spark Plug," was 15 feet high.

In front of the Macy store, where the parade was disbanded, the balloons were released and an award of $50 offered for every one returned. Ten thousand smaller toy balloons were also released.

J. F. Cooper of the balloon room and V. R. Jacobs of government sales of the Goodyear company, had charge of the handling and inflation of the balloons.

## Mr. Cox Reports on His Visit

AN interesting description of his visit to America to attend the conference of the Rubber Division of the American Chemical Society was given by Secretary W. F. V. Cox of the Institution of the Rubber Industry before that body's first December meeting in London.

Mr. Cox's first stop was at Montreal, where he went over the plant of the Dominion Rubber Co. In Toronto, his next stop, he visited the Dunlop and Gutta Percha Companies, and then proceeded to Atlantic City for the American Chemical Society's conference. All these Canadian undertakings were very much in favor of the formation of a Canadian branch of the I. R. I.

The following two weeks he spent in Akron, his object being to meet as many individuals connected with the rubber industry as he could during his 35 days' stay. He visited the Goodrich, Miller, Firestone, Philadelphia and other plants and conferred with members of the boards of these concerns. From Akron, Mr. Cox proceeded to Chicopee Falls, Mass., where he toured the Fisk factory, and thence to Boston to see the plant of the Simplex Wire & Cable Company. He concluded his visit in New York.

A joint conference of the Rubber Division of the American Chemical Society and the Institution of the Rubber Industry to be held in London in May or June, 1931, was arranged by Secretary Cox while at Atlantic City. This conference will probably last for two days and, it is hoped, will be instrumental in bringing about greater co-operation between the two organizations. In return the I. R. I. is considering a visit to America in about four years' time.

# Outlook for the Rubber Industry in 1939

(Continued from page 312)

is my opinion that 1930 will be one of the finest years ever enjoyed by the rubber industry.

As for the Wall Street decline, three months ago we took the present era of prosperity on faith. Today, following the recent debacle, if it can be so called, we find that prosperity is still with us and our faith is now bulwarked by facts as hard and real as the most pessimistic would or should wish.

My opinion is that the Wall Street decline is one of the finest things that could possibly have happened, inasmuch as it educated thousands and perhaps millions of people to the difference between paper wealth and natural wealth. And there is the undeniable fact that today industry has more money at its disposal for legitimate and constructive purposes than it had when pure speculation was at its peight.

## Crude, Reclaimed and Scrap Rubber

### Shortage in Crude Rubber Seen

G. H. Carnahan, President, Intercontinental Rubber Company, New York City

Indications now point to the American rubber industry and American consumers of rubber products enjoying another year of bargain rubber prices, and probably our attitude will continue to be one of "sufficient unto the day."

However, attention is called to the fact that in 1929 the world's potential production of rubber from all cultivated sources was 100 per cent realized for the first time in many years and still consumption lagged by only 6 per cent. Aside from a possible small increase of wild rubber output, there is no reserve to be brought out by price stimulation. In fact, most of the so called "native" estates contributing about one quarter of the entire supply are being currently over-tapped and will later have to be rested or replanted. Do we in America know of any other essential basic commodity or product that is not now equipped to increase output within one year by at least 50 per cent in response to a temporary or sustained demand? It takes at least nine years for a rubber estate to reach a full bearing stage, and a margin of 6 per cent is (or should be) too thin for comfortable contemplation by American consumers. Increased use by the rest of the world of an important agent of modern civilization is going to be a large factor in destroying our future self-satisfaction.

### Looks for Increase in Crude Rubber Demand

F. R. Henderson, President, New York Rubber Exchange.

I believe the coming year will show continued constructive progress in the rubber industry. I hope the crude rubber market will be left to natural influences. We will continue to require increasing quantities of rubber, and the margin between the supply and demand is not sufficiently large to warrant alarming statements encouraging fixation schemes.

The extent of production and consumption during 1929 has been a revelation, not only to the actual consumers of rubber products, but to those closely associated with the industry. The latest estimate of world shipments for 1929 is 860,000 tons compared with shipments amounting to only 660,000 tons in 1928. The continued heavy shipments from Malaya even after the surplus accumulated pending the removal of restriction was disposed of, account for most of the increase.

World consumption during 1929 will doubtless exceed 800,000 tons as compared with 670,000 tons in 1928. The United States alone will take about 470,000 tons, while the rest of the world will need 330,000 tons. During the summer, it appeared that the United States' consumption would approximate 500,000 tons, but the slowing up in manufacturing toward the end of the year will bring this figure down to 470,000 tons.

### Reclaimed Rubber Prospects Satisfactory

L. J. Plumb, *President, U. S. Rubber Reclaiming Company, New York City*

I believe 1930 will be a satisfactory year for the reclaimed rubber industry. Manufacturers of tires are all predicting sales equal to, if not greater than 1929. The character of their sales may be different next year from this, but indications are that the net result in volume will be no less.

Climatic conditions have been decidedly favorable to the rubber footwear industry, so we are justified in expecting a good year for it. Mechanical rubber plants even today are busy. With the expenditures already promised by the railroads and large industrials, there should be a large demand for mechanicals.

The easing in the credit situation should go a long way towards improving the building industry, which in turn will call for a larger production of insulated wire and miscellaneous rubber articles.

We are, of course, at the present time running below capacity, but we must not lose track of the fact that we have done a year's business in the first nine months of 1929 and a let-down was inevitable. The drastic break in the securities market, during October and November, while in part a contributing factor to our temporary depression, cannot be of lasting influence. To repeat a much overworked phrase,—"fundamental conditions are sound."

Reclaimed rubber is looked upon today as an essential ingredient in almost all forms of rubber articles. Despite the low prices which have prevailed for crude throughout the greater part of this year, the consumption of reclaimed has been greater than ever before.

We do not believe next year will be the most profitable one in the history of the rubber industry, but we do believe that within a relatively short time, demand for all forms of rubber goods will again be more in step with production, and that on the whole, 1930 will be a satisfactory year to the reclaiming industry.

### Scrap Rubber Not Profitable at Present Prices

H. Muehlstein and Company

Due to lack of buying interest on the part of reclaimers the prices of scrap rubber have declined to a point where collectors can no longer operate profitably at all. This is especially true of dealers in outlying districts where the existing freight rates to the reclaiming points are so high that they preclude all possibility of shipment at the present price levels.

Many of the larger dealers handling various lines of waste have discontinued their rubber business entirely, while practically all of them have curtailed their activities in scrap rubber as much as possible. They will continue to do so until such time as the price will allow them to realize a fair profit.

This condition is resulting in the loss of large tonnages which ordinarily would be available to the reclaimer and while the shortage is not obvious during the present period of inactivity it will certainly become evident at the first indication of buying interest.

Therefore, if there should be a demand for scrap rubber sometime during 1930, it is reasonable to assume that higher price levels may prevail.

## Chemical Suppliers and Rubber Machinery Companies

### To Expand Production of Carbon Black

R. H. Eagles, J. M. Huber, Inc., New York City, N. Y.

Entering 1929, the rubber industry laid plans for record-breaking production, and the carbon black industry responded with the erection of many new plants to meet the rapidly growing demand. When the anticipated consumer demand did not fully materialize, both industries of necessity began to build up heavy stocks. In the case of carbon black, this has brought about a sounder condition, since stocks had been depleted to the danger point earlier in the year.

The easier stock position has been reflected in a lower contract price for 1930. While the new price will mean an actual loss for some producers, the bulk of the industry is in strong hands, and there is no reason to believe that production will be allowed to decline below a safe balance against consumption.

Considerable progress has been made in the scientific control of carbon black quality, especially as regards selective behavior with the various accelerators. It is safe to say that this ingredient today represents one of the most satisfactory raw materials, from standpoint of quality, quantity and price.

We heartily concur with the recommendations of President

Hoover in the recent industrial conferences in Washington. It is the intention of J. M. Huber, Inc., to expand, rather than curtail, our development program involving research, production, and distribution of carbon blacks, clays and colors.

### Better Equipped Than Ever to Service Industry

A. F. KITCHEL, Binney and Smith Company, New York City, N. Y.

We are approaching the coming year under somewhat different circumstances than have heretofore applied. Our natural resources have become available to such an extent that it has enabled us to increase our production to the largest point in our history. The cut in tire production during the latter part of this year has reduced consumption somewhat, with the result that stocks have accumulated and we have been able to build up our storage to a level more in keeping with the commensurate needs of the industries which we serve.

We are, therefore, better equipped than ever to render the proper kind of service to the trade, and the schedules placed in our hands for 1930 would indicate a good, healthy anticipation for that period. Even though no peaks are reached in manufacturing schedules, we feel that indications point to a steady showing of material size, and this on an economic basis which cannot fail to contribute its share to the general stability of the country in its various business phases.

### Industry Refuses To Be Frightened

C. P. HALL, President, C. P. Hall Company, Akron, O.

We have learned that the rubber industry always moves forward from periods of reduced operations to sounder manufacturing and selling practices—it refuses to be frightened. We have taken advantage of this slower period to rush construction of our new factory and warehouse in order to be fully prepared for increased demands.

### Prospects for Rubber Machinery Bright

R. B. KOONTZ, President and General Manager, Adamson Machine Company, Akron, O.

While the collapse of the stock market is to be regretted, it was inevitable and since it had to come it seems well that it came just when it did. Business has had a very good year thus far, not only in volume, but reasonably profitable as well, and is undoubtedly better able to meet a changing condition which the collapse has brought about because of low inventories and good cash balances. While there has been some recession in orders, there has been no cancellations, and the outlook for 1930 is, to say the least, very promising. We anticipate substantial domestic business in the way of new and improved basic equipment and there is good demand for specialized machinery at all times.

## Elmore Continuous Counter Current Centrifugal Washer and Dryer Unit

THE Elmore Centrifugal Products Corporation, 6527 Manchester Avenue, St. Louis, Mo., have recently developed a continuous counter current washer and centrifugal dryer especially designed for use in rubber reclaiming plants and other factories where similar problems prevail. The two machines are installed and operated as a single unit.

The underlying principle of the new washer involves washing the material in revolving screens, mounted on one shaft, having inside lifting flights, the lower part of each screen being immersed in its own tank of water, means for advancing the material from one screen to another, while the water in each succeeding screen is maintained at a higher level, preventing contamination from the preceding tank, until in the third screen, the clean wash water entering this screen at the discharge end and cascading from tank to tank toward the feed end, where it escapes at the proper overflow level. The manufacturers claim that with the new Elmore continuous counter current washer the causticity of the devulcanized particles is reduced to 1/50 of 1 per cent with the consumption of a comparatively small amount of water.

The Elmore continuous centrifugal dryer is the result of many years of development. There are two rotating elements, the outside conical screen frame and the inside solid cone, carrying the spiral hindrance flights, the screen frame being driven by a hollow shaft and the solid cone by a spindle shaft passing through the hollow shaft. To each of these shafts is keyed a chrome-nickle gear.

The material enters the machine from the top, falling on the cone, when the centrifugal force throws it against the screen. It slides down the screen until it meets the upper end of the hindrance flights, and while doing so the liquid instantly begins to pass the perforations in the screen.

The manufacturers claim that one Elmore continuous centrifugal dryer will handle the tonnage of from 3 to 10 batch type centrifugals of similar basket diameter and will require power not to exceed one quarter of that required to handle a corresponding tonnage production produced from batch machines.

A number of installations have been made in rubber factories and reclaiming plants.

**An Installation of the Elmore Continuous Counter Current Washer and Centrifugal Dryer in a Large Rubber Reclaiming Plant**

# Greetings - - -

¶ Again we extend our heartiest good wishes.

¶ We hope the New Year brings with it increased Happiness and Prosperity.

## H. MUEHLSTEIN & CO., Inc.

NEW YORK AKRON CHICAGO BOSTON LOS ANGELES

## RENEWED Scott Testers

We have on hand two Standard model L-2 Rubber Tensile Testers which are thoroughly overhauled and in excellent condition which we can offer at a price of approximately

### One Half Price

We also have a Flexing machine for belt and tire sections. This is practically a new machine and is offered at a substantial discount.

**HENRY L. SCOTT COMPANY**
P. O. Box 963 Providence, R. I.

## *RUBBER DRYERS*

**The Hunter Process**
**in**
**The Carrier Ejector System Dryer**

The successful drying of Rubber is essentially a problem of humidity control. The patented Hunter Process is used exclusively in Carrier Dryers. Carrier automatically controlled dryers reduce time, space and milling costs.

*Write concerning your problem*

**Carrier Engineering Corporation**
850 Frelinghuysen Ave. Newark, N. J.

# *Treat Your LINERS in Your Own Plant*

with

# DAMASCUS LINER COMPOUND

*Investigation Invited*

---

DAMASCUS MANUFACTURING CORP.
9501 CASSIUS AVENUE
CLEVELAND, OHIO

New Jersey Territory: H. M. ROYAL, Inc., Trenton

# EDITORIAL COMMENT

## The Important Question of Automobile Demand in 1930

TWO somewhat divergent opinions regarding the prospects in the automobile industry during 1930 have been expressed by equally recognized authorities. Col. Leonard P. Ayres, vice-president of the Cleveland Trust Company expects the production of cars and trucks in the United States and Canada to fall below that of 1929 by more than a half a million, and believes the used-car problem will have a serious effect on replacement sales of new cars. Alfred P. Sloan, Jr., president of General Motors Corporation, sees the demand for replacements during 1930 reaching 3,390,000 vehicles and holds that this replacement demand will be an important factor in stabilizing sales in the coming year.

"The automobile industry has overproduced in the first nine months of this year, and has had to curtail production in order to let dealers work off stocks of cars," says Col. Ayres. "The industry has not yet reached the saturation point, for its domestic sales of cars each year are still far in excess of the number needed annually for the replacement of old cars that go out of service. The chief trouble with the automobile industry is that the long absence of Ford production created an artificially good market for used cars, and resulted in overgenerous allowances for them when they were taken in trade.

"The demand for these used cars has now declined, and dealers have too many of them in their possession. They are reluctant to accept more as trade-ins on new cars, and so the sales of new automobiles have temporarily become difficult, and their production is curtailed. This condition will be made the more serious by the decline in stock prices, but it had its independent origin. The automobile industry is the most important customer of a long list of other industries, and any serious decline in its activity has a depressing effect on business in general, as was impressively shown in 1927."

Mr. Sloan takes the attitude that the falling off in automobile production during the last part of 1929 was not surprising and was not due so much to lack of demand but "to the tendency on the part of manufacturers to revise their models and realign their production facilities along toward the close of the year, instead of in the fall or summer."

"Our studies of the situation a year ago, as stated to the press at that time, clearly indicated that sales in both 1927 and 1928 had been limited by an underproduction in the low price class during those years," Mr. Sloan said. "Thus the industry entered the year 1929 with a deferred demand in the low price class and this business, which might normally have been enjoyed in the previous years, served to swell the 1929 volume.

"As to whether the shortage has, even now, been entirely compensated for, I cannot say.

"The replacement market has been an important factor contributing to the record breaking performance of 1929.

"Motor vehicles pass out of service through wear and tear and obsolescence, and every time a car is scrapped, there is afforded the opportunity, directly or indirectly, to sell a new car.

"The quantity of vehicles scrapped each year is primarily dependent on car life and the quantities produced in prior years. Thus the number of cars being sold today will influence the rate of scrappage five, six or seven years hence, and the replacement market of today is dependent on the rate of production five, six and seven years ago.

"It is only within the last few years that the replacement market has begun to reflect the heavy upward trend in production which took place in the years following the 1921 panic.

"In 1929, for the first time in the history of the industry, the replacement market will exceed 3,000,000. And in 1930 our calculations, based on actuarial mathematics, indicate a domestic replacement requirement of 3,390,000 vehicles.

"With an increase in the world-wide use of motor vehicles to over 30,000,000, with a growing tendency in this country toward the ownership of two or more cars, and with a rapid upward trend of first-time buyers in the newer markets of the world, our studies indicate that, with the passing of a few more years, the record-breaking production of 1929 will represent only a commonplace performance, with a stabilized upward trend year after year in proportion to the growth of population and wealth."

The RUBBER AGE

*Published on the 10th and 25th of each month.*
*The Only Twice-a-Month Rubber Publication.*

THE PALMERTON PUBLISHING CO., INC.

Editorial Office, 250 West 57th St., New York City

Telephones: Columbus 2923, 2924

THE RUBBER AGE is published on the 10th and 25th of each month by The Palmerton Publishing Co., Inc., a New York corporation. P. L. Palmerton, President; Earl D. Osborn, Vice-President and Secretary; Peter P. Pinto, Treasurer. Publication Office, 1-3 Peace St., New Brunswick, N. J. Subscription rates: Domestic, $2.00 a year; Canada, $2.50; foreign, $3.00; single copies, up to 3 months old, 20c; over 3 months old, 50c. Advertising rates on application.

*Contents Copyrighted 1929 by The Palmerton Publishing Co., Inc.*

*General Manager*.....PETER P. PINTO
*Managing Editor*.....J. P. BUSHNELL
*Assistant Editor*.....T. H. DAVISON
*Circulation Manager*.....A. M. SMITH

*Representatives in all the rubber centers of the United States, Canada, England, France, Germany and the Middle East.*

CYANAMID AERO BRAND PRODUCTS

## BETTER RUBBER *from these* BETTER CHEMICALS

Our resources, manufacturing control and ample warehousing facilities assure our customers uniformly dependable products and prompt deliveries.

| | |
|---|---|
| *D. P. G.* | —One of the most widely used accelerators; proven by eight years general use by the trade. |
| *D. O. T. G.* | —In certain compounds is cheaper than D. P. G. per unit of acceleration. |
| *Accelerator No. 49* | —A disubstituted guanidine—in strength midway between D. P. G. and D. O. T. G. |
| *Rubber Sulphur* | —Carefully prepared to meet your specifications—air floated and bolted through silk. |

Information on complete line upon request.

*Industrial Chemicals Division*
American Cyanamid Company
*535 Fifth Avenue New York*

COOPER GUARANTEED PRODUCT

## QUALITY CHEMICALS
for the
## RUBBER INDUSTRY
Stocked at Akron, Ohio.

Aniline Oil
Pine Tars
Co-Flux
Gasoline
Soap Bark
Palm Oils
Hardwood Pitch

R. A. SPERRY
Akron Manager
134 E. Miller Ave.
*Phone*
Main 1898

Red Oxide
Benzol
Toluol
Sol. Naphtha
Crude Sol. Naphtha
Naphthalene
Cresylic Acid

WILLIAM COOPER & NEPHEWS
INCORPORATED
1909-25 CLIFTON AVE. CHICAGO, ILL.

# SPECIAL SOFTENERS

*—Better Working Properties before Cure*
*—Improved Vulcanized Quality*
*—Lower Raw Materials Cost*

# TASCO ASPHALT COMPANY

Akron Representative
The F. F. Myers Co.
Akron Savings & Loan Bldg.

HOME OFFICE
238 Wilson Ave.,
Newark, N. J.

Trenton Representative
F. V. Bechtel
289 North Willow St.

*Warehouse Deliveries from All Agencies*

# NEWS of the INDUSTRY

*Financial—Business*
*Building Operations*
*Personals*
*New Products*

## RUBBER ASSOCIATION TO MEET ON JANUARY 6TH

The fifteenth annual meeting of the Rubber Manufacturers Association, Inc., will be held in the West Ball Room of the Hotel Commodore, New York City, on January 6. As in previous years, a luncheon will be served in connection with the meeting. Officers will be elected at the business session, which will begin at 10:30 A. M.

At 7:30 P. M. the same day, the annual banquet of the association will be held at the Hotel Commodore. Details regarding speakers and the program of entertainment have not yet been announced.

## CHICAGO RUBBER GROUP TO DISCUSS INSTRUMENTS

Members of the Chicago Rubber Group of the American Chemical Society will hold their first 1930 meeting on January 17 at 6:30 P. M. at Maillard's, Michigan and Jackson Boulevards, Chicago, Ill. Accommodations are available for 125 men, and reservations should be made immediately with B. W. Lewis, secretary, 365 East Illinois Street, Chicago.

The subject for the meeting will be "Modern Developments in Control Instruments for the Rubber Factory." Speakers will include L. J. D. Healy, Fisk Rubber Company, Cudahy, Wis.; E. L. Stilson, Akron office of the Bristol Company, Waterbury, Conn.; and R. E. Olson, Taylor Instrument Company, Rochester, N. Y.

### Los Angeles Group Meets

The ninth meeting of the Los Angeles Group of the Rubber Division of the American Chemical Society was held at the Pollyanna Tea Room, Los Angeles, on December 20, preceded by a dinner. E. W. Matthis of the Pacific Goodrich Company spoke on "The Goodrich System of Wage Payment." An interesting discussion followed, and plans were considered for the 1930 activities of the group.

### Akron Group Elects Officers

With about 275 members present, the Akron Group of the Rubber Division of the American Chemical Society met on December 9 at the clubhouse of the Firestone Tire & Rubber Company and elected officers for the coming year. C. W. Sanderson, of the Goodyear Tire & Rubber Company, was elected chairman of the group; W. E. Shively of Goodyear, vice-chairman, and L. W. Brock, of Godfrey L. Cabot, Inc., secretary-treasurer.

### Hurley Says Industries Can Abolish Warfare

Industrial leaders of the world can abolish war by a mere gentlemen's agreement, Edward N. Hurley, former chairman of the United States Shipping Board, said in a recent letter to the president of the International Chamber of Commerce. Through the control of the ten or twelve basic raw materials necessary for modern warfare, any belligerent nation could be denied the essential products to further its warfare by agreement of the leaders, the letter explained.

Among the products listed by Mr. Hurley were rubber, iron ore, coal, manganese, nickel, aluminum, petroleum, news print, tungsten, chromium and mercury. Naming the industrial leaders who hold the power to organize and thus prevent war, he mentioned for the rubber industry Harvey S. Firestone, president of the Firestone Tire & Rubber Company, and H. Eric Miller, managing director of Harrisons & Crosfield, Ltd.

## C. R. JOHNSON JOINS THE PHILA. RUBBER WORKS CO.

C. R. Johnson, for the past three years technical director of Godfrey L. Cabot, Inc., Boston, Mass., has joined the staff of the Philadelphia Rubber Works Company, Akron, O., to engage in sales promotion work. During Mr. Johnson's period of service with Godfrey L. Cabot, Inc., he organized the carbon black research laboratory of that firm and was active in process development and in technical sales activity.

Mr. Johnson was previously connected with the factory organization of the Goodyear Tire & Rubber Company for nine years; in charge of the chemical department for two years, and in charge of the development department for one year. He was subsequently manager of the development department of the Humble Oil & Refining Company of Texas, where he had opportunities to become acquainted with the properties and behavior of natural gas and carbon blacks.

Mr. Johnson has at all times been an active member of the American Chemical Society and a frequent speaker at meetings of the Rubber Division. He had had many papers on the subject of carbon black published in the last three years.

## C. T. C. TIRE & RUBBER CO. GOES INTO BANKRUPTCY

Suit has been filed in circuit court at Portland, Ore., by Sidney Teiser, assigned for the benefit of creditors of the insolvent C. T. C. Tire & Rubber Company, to recover money alleged to be due on stock subscriptions and to recover enough from those who are financially responsible to pay the entire indebtedness of the corporation. Nineteen stockholders of the company are the defendants.

According to the complaint, assets of the corporation are $4,501 and its indebtedness is $34,115. Most of the nineteen defendants in the suit are only a few hundred dollars in arrears, the complaint says. The largest figures alleged due are those of J. H. Gensler, $45,600; Edward Kraenick, $47,550; and A. L. Miller, $1,200.

The company purchased the old Columbia Tire Corporation in April, 1928, after the latter had been forced to suspend operations because of lack of capital. At the time it was said that the Columbia plant and business had been purchased for approximately $250,000 and that the new company would have a capitalization of $300,000 and fixed assets of $425,000, according to Mr. Gensler, who acted as chairman of the stockholders. J. F. Cullen, formerly engineer and manufacturing manager of the old corporation, was named to act as president and general manager.

## APPOINT RECEIVER FOR ADMIRAL TIRE COMPANY

The Coshocton National Bank has been named as receiver in litigation proceedings begun in common pleas court against the Admiral Tire & Rubber Company, Coshocton, O., by T. L. Montgomery, a trustee. Mr. Montgomery states in his petition that the company failed to meet the requirements specified in the issuance of $50,000 in first mortgage bonds of June 1, 1926.

D. T. Henne, vice-president of the company, stated on December 12 that he would leave to join the Monarch Rubber Company, Canton, O., where he will be in charge of sales. The Admiral Tire & Rubber Company was formed in June, 1923, and has since been manufacturing Admiral cord tires and tubes and Prince cord tires. It is capitalized at $100,000 in common stock and $100,000 in preferred stock.

### National Tire Incorporated

The National Tire & Rubber Corporation has been incorporated at East Palestine, O., with 5,000 shares of capital stock of no par value. The incorporators are Raymond B. Taggart, Robert F. Taggart and Mary E. Taggart.

## General Test Unit Leaves for South

WHEN three units of the General Tire & Rubber Company test fleet, shown above, started recently for Florida and southern California for winter testing on tropical highways, the General truck balloons on the trucks faced thousands of miles of high-speed driving, while under-inflated and over-loaded, carrying excessive loads of pig iron. General passenger car tires are being tested on the sedan with this part of the test fleet.

## RUBBER COMPANIES SHOW DECREASE IN ACCIDENTS

The safety record set in Akron rubber factories during October set a new low mark for accidents in that industry, according to Thomas P. Kearns, head of the Safety Division of the Ohio State Industrial Department. Akron rubber plants had 379 accidents in October with 14,337 days of lost time, in comparison with 426 accidents and 18,013 days of lost time in September.

"The records made during October by the rubber industries of Akron," said Mr. Kearns, "were striking examples of the extent to which accidents can be prevented by systematic organization and persistent education along safety lines. Such an accomplishment should offer a real inspiration for the Rubber Section of the All-Ohio Safety Congress, to be held in Columbus on January 14, 15 and 16, and in which many of the leading exponents of industrial safety in Akron will participate."

J. T. Kidney, safety department manager of the Goodyear Tire & Rubber Company, is chairman of the Rubber Section of the National Safety Council and is arranging plans for a large delegation of Akron representatives to attend the state congress.

### Footwear Repairing Contest

Robertson & Sons, New York City, will conduct a national contest for rubber footwear repairing in connection with the third annual Shoe Repairers' and Dealers' Exposition to be held in Philadelphia, Pa., next March. A silver loving cup will be awarded to the champion and 66 medals will be given for first, second and third prizes in various classes of rubber repair work.

### Monsanto Buys English Firm

The Monsanto Chemical Works, St. Louis, Mo., has purchased the Sunderland Tar Distilling Works, formerly owned by Brotherton & Company, Ltd., Leeds, England. This plant has an annual capacity of 60,000 tons of tar and also produces creosote, oil, pitch, napthalene and pyridine. Monsanto has also started work on a $100,000 addition to its fine chemical plant in St. Louis.

## ADAMSON MACHINE GAINS MORE EXPORT BUSINESS

The Adamson Machine Company of Akron, O., manufacturers of basic and special rubber machinery for the rubber industry, is bringing to a close one of the most successful years in its history, according to a recent announcement by Russell B. Koontz, president and general manager.

Mr. Koontz is particularly elated with developments of the past few months which have enabled the Adamson Machine Company to place orders for equipment in Mexico, France and Russia.

"The export end of our business looks quite favorable," says Mr. Koontz. "We have recently placed substantial quantities of basic rubber equipment in rubber factories in Mexico and France and at present are negotiating for the placing of additional equipment in Russian factories, of similar nature."

The Adamson company specializes in the manufacture of hydraulic presses, tubing machines and basic and special equipment of all types.

### Cambridge St. Louis Branch

The Cambridge Rubber Company, Cambridge, Mass., has opened a branch in St. Louis, Mo., at 1627 Washington avenue, under the management of W. C. Hippisley, formerly of the Hood Rubber Company. Hewitt MacPherson, sales manager, states that this new branch, located in the centre of the wholesale shoe district, will enable the Cambridge Rubber Sales Corporation to take better care of all its customers in that vicinity and give them 24-hour deliveries when desired.

### Monroe Rubber Company Formed

The Monroe Rubber Products Company has been incorporated at Trenton, N. J., for the purpose of manufacturing rubber goods of all descriptions. The capital stock of the concern is $100,000, and the office and factory address is 146 Washington Street, Paterson, N. J. The incorporators are Raymond George and Joseph C. George, of Monroe, N. Y., and William C. Casperson, of Paterson.

## AKRON RECLAIMING CO. ELECTS 1930 OFFICERS

Officers of the Akron Rubber Reclaiming Company were re-elected on December 3 at Akron, following a meeting of stockholders. J. B. Huber is president; William Welch, vice-president and general manager; J. M. Alderfer, second vice-president; and R. J. Houston, secretary and treasurer.

All were re-elected directors with the exception of Mr. Houston, as were Allen F. Ayres, Albert R. Henry, R. M. Pillmore and C. W. Seiberling. Arnold H. Smith, a former director, who has gone to England, was not included in the new directorate.

Business volume for the fiscal year was 40 per cent higher than a year ago, stockholders were told. The company, which has plants in Barberton, O., and East St. Louis, Ill., is financially sound and closed the year with a profit of $10,296.

### Dayton Rubber Leases Plant

**The Dayton Rubber Manufacturing Company has leased a large warehouse building, located on a Big Four siding at Dayton, O., and having an area of 50,000 square feet, in order to expedite carload shipments of tires to various distributors. The warehouse is known as building M-4 and is located at the former Barney & Smith Car Works.**

### Monsanto Chemical Profit

The Monsanto Chemical Works, St. Louis, Mo., and subsidiaries, including the Rubber Service Laboratories Company, have reported for the nine months ended September 30 a consolidated net profit of $1,381,481 after charges and federal taxes. This is equal to $3.64 a share on the 398,293 shares of no-par stock outstanding.

### Rubber Stocks Decline

Stocks of rubber manufacturing companies were generally lower than at the end of the previous fortnight. New lows for 1929 or longer were made by Ajax, General common and preferred, India, Kelly Springfield preferred, Miller common and preferred, and Seiberling common and preferred. The prices of leading rubber company securities on December 18 compare as follows:

| | Last Price | | High | Low |
|---|---|---|---|---|
| | Dec. 18 | Dec. 4 | —1929— | |
| Ajax | 1⅞ | 2⅛ | 11¼ | 1⅞ |
| Falls | — | — | 11⅝ | 4 |
| Faultless | — | 38 | 45 | 30 |
| Firestone | 32⅞ | 36 | 41½ | 30 |
| do. 6% pfd. | 84⅞ | 86¼ | 98¾ | 79 |
| Fisk | 3½ | 4 | 20⅛ | 3½ |
| do. 1st pfd. | 15 | 16 | 72½ | 15 |
| General | 220 | — | 298 | 220 |
| do. pfd. | 90 | 90 | 102 | 90 |
| Goodrich | 46⅝ | 46¼ | 105¾ | 42 |
| do. pfd. | — | 99⅞ | 115⅛ | 98¼ |
| Goodyear Com. | 69⅝ | 69¼ | 154½ | 60 |
| do. pr. pfd. | 95 | 94 | 104⅞ | 87 |
| India | 16½ | — | 78 | 16½ |
| Intercontinental | 5 | 5½ | 14¼ | 2 |
| Kelly Springfield | 4 | 4¼ | 24 | 3⅞ |
| do. 1st pfd. | 21 | 36½ | 100 | 20 |
| Lee | 6⅝ | 6⅝ | 25 | 5 |
| Miller | 4 | 5⅛ | 28¾ | 3⅛ |
| do. pfd. | 19½ | 24 | 88 | 19½ |
| Mohawk | 10 | 12½ | 66 | 10 |
| do. pfd. | — | — | 90½ | 78 |
| Norwalk | — | — | 6⅛ | ¾ |
| Pirelli | 45¾ | 47¼ | 68 | 43¼ |
| Raybestos-Manhattan | 33⅛ | — | 58½ | 28 |
| Seiberling | 11¼ | 15 | 65 | 10 |
| do. pfd. | 71¼ | — | 107⅞ | 71⅞ |
| U. S. Rubber | 27¾ | 28¼ | 65 | 15 |
| do. pfd. | 51 | 50⅝ | 92½ | 40½ |

## BINNEY & SMITH OPEN NEW OFFICE AT AKRON

To take care of its increasing business in the Akron territory, the Binney & Smith Company, New York City, manufacturer of Micronex and Stearex, has opened an office at 515 United Building, corner Main and Market streets, Akron, O., with Enos H. Baker in charge. Mr. Baker will also have charge of the Cleveland office at 2036 East 22nd street in that city.

Mr. Baker is well known throughout the Ohio territory, having been until recently the Akron representative for the Portsmouth Dye & Chemical Company, of Portsmouth, N. H. Previously, he had been connected with the Rex-Hide Manufacturing Company, of East Brady, Pa. S. H. Richardson, formerly in charge of the Cleveland office, has resigned due to illness, and it is understood that he is going to California.

## MASSACHUSETTS BILL TO REQUIRE RUBBER TIRES

A bill making equipment of all motor vehicles with rubber tires mandatory, believed to be the first legislation of its kind ever to be proposed in this country, has been filed with the Massachusetts state legislature, according to advices from Boston to the Rubber Exchange of New York. The measure provides that the substance of the tire be approved by the Department of Public Works, and was introduced by Senator Charles W. Faulkner of Pittsfield.

The provisions of the bill make it mandatory that no metal part of the wheel or tire touch the ground, excepting non-skid devices. Fines of $50 to $100 are provided for violations.

## MILLER FORMULA SHOWS LONGER WEAR FOR TIRES

Statisticians of the Miller Rubber Company, Akron, O., have worked out a formula for determining approximately the average life of automobile tires. According to this method, the average life of a casing today is approximately 13,000 miles as against 10,700 a year ago. This means that tires now have a 19 per cent longer life than a year ago, or that they run 19 per cent more miles.

Approximately 114,000,000 tires are now in use on the motor cars of the United States. The tire mileage figures are arrived at in this way: The total gasoline consumption of the United States is converted into automobile mileage, then multiplied by four to obtain the tire mileage. Then this total mileage is divided by the total number of tires sold by the entire industry for renewal purposes.

The Miller company concludes that the increased mileage given by tires this year as against a year ago is the basic reason why the renewal tire business of this country is considerably lower than the estimate made by experts at the beginning of the year. Indications now are that fewer tires will be used by the renewal trade in 1929 than were used in 1928. It is also predicted that the average tire mileage for 1930 will be still higher than the present 13,000 miles.

## Edison Finds Goldenrod Best Plant for Rubber

Thomas A. Edison left West Orange, N. J., on December 5 to continue his experiments in the production of rubber from the common goldenrod and other plants at Fort Myers, Fla. He is going south earlier this year than ever before, he said, because of his eagerness to make progress in his search for an emergency source of rubber supply for the United States.

Of the thousands of varieties of plants with which Mr. Edison has experimented as a possible additional source of rubber, goldenrod has been found most satisfactory and most likely to be suited for possible commercial production, according to his secretary. Mr. Edison has not yet made any estimates of possible cost of production or decided upon the commercial possibilities of such production.

## Royal Rubber Opens Plant

The Royal Rubber Company, Akron, O., manufacturer of several foot comfort specialties, is now located in its new factory at 2925 Springfield Road in that city. Steadily increasing business made the move to larger quarters imperative.

## Dirigible Mast for New York

A 200-foot mooring mast for dirigibles will surmount the 1,100-foot tower of the 85-story Empire State Building, now under construction on the site of the old Waldorf-Astoria Hotel in New York City, according to an announcement by former Governor Alfred E. Smith, president of Empire State, Inc. Newspaper reports state that the Goodyear-Zeppelin Corporation will be consulted in designing the mast.

## *Charles O. Baughman*

Charles O. Baughman, secretary and treasurer of the Swinehart Tire & Rubber Company, died as a result of carbon monoxide gas from the exhaust of his automobile while he was working on it in his garage at his home on Fairlawn Heights, an Akron suburb, on December 2. The body of Mr. Baughman, who was 61 years old, was found slumped over the steering wheel of the car by Mrs. Baughman, and efforts at resuscitation proved futile.

Born on his father's farm in Franklin Township, July, 1868, Mr. Baughman had been a resident of Akron since 1892. After several years in the teaching profession and a short period of office work with the D. F. Morgan Boiler Company, he started work in 1909 with the old Swinehart Clincher Tire Company, a year later becoming its secretary.

Funeral services were conducted December 4 with burial in Rose Hill Cemetery. Mr. Baughman is survived by his wife and daughter, two sisters and two brothers.

## *John S. Lowman*

John S. Lowman, president of the Philadelphia Rubber Works Company, Akron, O., died on December 9 at St. Thomas Hospital in that city from injuries received a week previous when his auto hurtled more than 100 feet down a ravine. Mr. Lowman on the morning of December 3, swerved his Packard sedan to avoid a collision with a large bus on North Howard Street, Akron, and his car ran over the curb, missed a guard rail, and plunged down a steep wooded ravine, turning over several times.

Mrs. Lowman, who was with him, suffered severe bruises and shock when she was thrown through the top of the auto and she has been recovering at the Lowman home at Hudson. Mr. Lowman suffered no broken bones in the accident and for several days seemed to be rallying, but internal injuries developed that proved fatal.

A native of Cleveland, Mr. Lowman's first business experience after being graduated from high school at Painesville, O., was with the McIntosh-Huntington Company, wholesale hardware dealers at Cleveland. After remaining with that firm for five years, he journeyed to Alaska as a prospector and spent two years in the North.

He returned to Ohio in September, 1899, and entered the employ of the B. F. Goodrich Company, working in the costing department and in the clearing house as assistant manager. In June, 1904, Mr. Lowman accepted a position as secretary of the Alkali Rubber Company, which was merged with the Philadelphia Rubber Works Company in January, 1910. He was named vice-president of the new company after the merger and continued in that capacity until he was elected president last February.

Mr. Lowman was a member of the Portage Country Club, Akron City Club, Silver Lake Country Club, Lotus Club, Masonic Club of Akron, Akron Automobile Club and until recently a member of the Akron Rotary Club and of the Rubber Association of America. He was a director of the Rubber Association of America from 1916 to 1924 and served as a member of the executive committee of the Rubber Reclaimers Division.

Mr. Lowman's death was the third in his family within the last five months, his brother, William, having died last June in California and another brother, Charles, having died in October at Birmingham, Ala. Surviving with the widow are two daughters, one son, one grandchild, a stepmother and two step-sisters. Mr. Lowman would have been 55 years old on December 18.

CATALPO
for
Inner Tubes

# Rubber News Around the World

## RUBBER INSTITUTION TO ORGANIZE NEW SECTION

Plans for the organization of a new section of the Institution of the Rubber Industry for the West of England were formulated at a meeting of 150 rubber chemists and technologists held on November 27 at the George Hotel Assembly Room, Trowbridge. Sir Herbert Blain, vice-chairman of the Avon India Rubber Company, presided at the meeting, and Dr. T. J. Drakely, head of the department of chemistry and rubber technology of the Northern Polytechnic Institute, and editor of the "I. R. I. Transactions," gave a talk on "Recent Progress in the Rubber Industry."

The proposal for the formation of a new section was presented by T. L. Garner, honorary representative of the Institution who called the meeting, and was seconded by F. M. Panzetta, of the Trowbridge Rubber Company. It was pointed out that the nearest centre for rubber experts at present was London, 90 miles away.

### German Rubber Merger

A merger has been announced in the German rubber substitute industry to take in the Firmen Deutsche Oelfabrik Dr. Alexander, Dr. Bunz and Richard Petri, Hamburg, and Georg Grandel Oelwerk, Augsburg, as of January 1. The latter firm will go into liquidation and its plant will be transferred gradually to Hamburg. The name of the new firm will be Deutsche Oelfabrik and Dr. Grandel.

### Consider Marking Belting

The committee appointed by the British Board of Trade under the Merchandise Marks Act is considering an application for the compulsory marking of machinery belting at the request of the United Kingdom Rubber Manufacturers Association and other groups. Large rolls of rubber belting have been produced at the committee meetings, and those opposing the compulsory indication of origin have asserted that customs officials would have difficulty in examining the rolls and that the importation of such belting would be virtually prohibited by such a measure.

CATALPO

for

Treads

### Tire Prices Cut in Canada

A three per cent reduction in the prices of tires and tubes was announced on December 4 by Arthur B. Hannay, secretary of the Rubber Association of Canada. The cut is the result of reduced cost of production, he said.

### New Norwegian Tire Factory

The A. S. Askim Gummivarefabrik, Norway, one of the largest and most important rubber footwear factories in Scandinavia, is about to start work on the manufacture of automobile tires. The new tire plant will be under the supervision of an American expert.

### Harrisons & Crosfield Profit

Harrisons & Crosfield, importers, general merchants and tea and rubber agents, have reported a net profit for the year ended June 30, 1929, of £388,523, as compared with £343,031 in the previous year. A mortgage of £100,000 on the head office premises was paid off during the year.

### Czechoslovakian Cartel Formed

With a view to suppressing the existing competition among Czechoslovakian tire and rubber goods factories, a cartel agreement has been arrived at between the two important Czechoslovakian subsidiary companies of the Semperit Austrian-American Rubber Works Company. These are the Prague Rubber Factory Vysocany and the Matador Rubber Works of Bratislava.

### Dunlop-Rapson Merger Rumored

A possible merger of Dunlop and Rapson interests in Australasia has been suggested recently in dispatches from Australia. It is reported that negotiations are under way for the acquisition of the Rapson Tyre Company, operating in Tasmania, by the Dunlop-Perdriau Rubber Company, Ltd. The Dunlop and Perdriau companies were combined in April, 1928, and the Barnet Glass Rubber Company included in January of this year.

### Japanese Tire Factory

It is reported that the Rubber Goods Manufacturers Association of Hyogoken has a plan for the production of automobile tires, but government aid will be necessary for its success. A few weeks previously, it was stated that a company capitalized at about 5,000,000 yen would be organized in Kobe for the same purpose. Tires are made in Kobe at present only by the Dunlop Rubber Company, which produces 40,000 a month, and the new company, to be formed by interests behind the Settsu Tire Company and the Naigai, Kakuich, Tokyo and Hanshin Rubber Companies, was planned to have an output equal to that of Dunlop.

## BRITISH GOODRICH NET HIGHER THAN LAST YEAR

Following a complete recovery last year from the poor results shown during 1927, the British Goodrich Rubber Company, controlled by the B. F. Goodrich Company, of Akron, O., has still further increased its revenues during the current year. For the twelve months ended September 30, 1929, the company reports a net profit of £92,929 (approximately $453,000), after charges, comparing with £73,235 in the previous fiscal year and with £5,856 in the year ended September 30, 1927.

After writing off £35,000 remainder of outstanding initial expenses, placing £21,144 to preference shares reserve, £15,000 preference dividend and proposal to pay a 4 per cent common dividend, less tax, the first since the company's formation, there is left £10,461 to be carried forward. The parent company has waived claim to £14,844, the amount of the preference dividend paid by them in 1925.

## BRITISH BAN SOLID TIRES FOR CARS WITH TRAILERS

A new tire ruling comes into operation in Great Britain on January 1, 1930, and the Minister of Transport draws attention to the Heavy Motor Car (Amendment) Order, 1929, dated October 11, 1929. The new order deals with the use and construction of "Articulated" vehicles. The expression "Articulated Vehicle" is defined in the order to mean a heavy motor car together with a trailer drawn thereby which is so constructed and by partial superimposition attached to the heavy motor car that a substantial part of the weight of the trailer is at all times borne by the heavy motor car.

The order prescribes that every wheel of such vehicles shall be fitted with resilient tires, and that where the tires are not pneumatic the rim diameters of wheels so shod shall be not less than 670 mm. The total overall length of such vehicles, excluding any starting handle, is limited to 33 feet. The limits of weight to be borne by the wheels of such vehicles, and how such weights may be distributed are also prescribed.

This order is supplementary to the order for all other vehicles to be pneumatic shod after January 1, next.

The 20th ordinary general meeting of the Tillyfour Rubber Company, Ltd., was held at London recently, and a proposal to pay a dividend of 5 per cent, less income tax at 4s to shareholders was approved. Hetherington White, chairman of the company, reported that the profit for the year had been £4,676, after taxes, a marked improvement over the previous year. The crop yield was stated to have been larger than anticipated, 900 acres giving 477 pounds per acre without pressure of any kind.

# Names in the News

DR. HARRY FISHER, of the general laboratories of the United States Rubber Company, Passaic, N. J., was a speaker last month before the members of the Elks' Club of Union City, N. J. He spoke on the general subject of rubber and the rubber manufacturing industry.

DR. W. H. MCMASTER, president of Mount Union College, spoke on the spirit of Christmas before the employes of the Goodyear Tire & Rubber Company at Akron on December 21. This is the sixth consecutive year that Dr. McMaster has addressed a Goodyear employes' meeting.

E. L. MORGAN, traffic manager of the Miller Rubber Company, was elected president of the Akron Traffic Club at a meeting held on December 10. He was formally installed at the club's annual party at the Hotel Portage on December 17.

HARVEY S. FIRESTONE, JR., president of the Firestone Plantations Company and vice-president of the Firestone Tire & Rubber Company, arrived at New York December 16 on the S. S. Statendam from England. He had left New York on November 8 to inspect the Firestone factory near London and to confer with heads of the Firestone development in England.

GEORGE M. TISDALE, director of purchases of the United States Rubber Company, addressed a meeting of the Purchasing Agents' Association of Philadelphia last month. "Rubber" was the subject of his talk, which was followed by a showing of the company's four-reel plantation film.

LEE SCHOENHAIR, pilot of the B. F. Goodrich Company's Silvertown plane, flew to Detroit on December 3 to confer with CAPTAIN FRANK HAWKS, judge of the 1929 Ford Reliability Tour, on plans for next year's event.

WILLIAM P. MACCRACKEN, former assistant Secretary of Commerce in charge of aviation, has been appointed as special counsel for the Goodyear-Zeppelin Corporation. Mr. MacCracken announced from Washington that he would establish a residence in New York so that he can be admitted to the bar in that state, where he will make his future headquarters. It is also reported that he will be chairman of the board of directors for the proposed New York-Rio-Buenos Aires airship line.

EMMER M. DUDLEY, of the credit department of the B. F. Goodrich Company at Pittsburgh, Pa., has been appointed as credit department manager at Charlotte, N. C. Mr. Dudley is a native of Zanesville, O., and an alumnus of Ohio State University.

WILLIAM M. MCCONNELL, pilot of the trimotored Ford transport plane of the Firestone Tire & Rubber Company, returned to Akron on December 5 after a 2,500-mile business trip through the south with company officials. Among those who rode with him were L. R. JACKSON, general sales manager, and W. G. MANLEY, southern sales manager. On December 8, Pilot McConnell left Akron on a new trip through the western states which is expected to last three months.

J. B. MILLS, former advertising manager of the Lambert Tire & Rubber Company, Akron, O., is no longer connected with that firm. Advertising matters are at present being handled by J. P. SEIBERLING, vice-president in charge of sales.

L. A. MCQUEEN has assumed his new duties as trade sales manager of the General Tire & Rubber Company. Mr. McQueen, who is 37 years old, was until last October

**L. A. McQUEEN**

general manager of tire sales for the B. F. Goodrich Company after having been successively assistant advertising manager and advertising manager in that organization. He is a member of the University and Portage Country Clubs and is an ardent "fan" at golf, tennis and bridge. He and Mrs. McQueen and one daughter live at 320 Devonshire Road, Akron.

W. C. YOUNG, manager of aeronautical sales for the Goodyear Tire & Rubber Company, was the principal speaker at a meeting of the Stark County Foremen's Club, held at the Goodyear Akron plant on December 3. After the members had inspected the Goodyear factories, he addressed them on the subject of "The Future of the Air Industry."

S. T. LACHANCE, general credit manager of the Dayton Rubber Manufacturing Company, spoke on December 5 at a meeting of the Akron Credit Club at Young's Hotel in that city. His subject was "Analysis of Credit Information."

TAIJI KOMURO, managing director of the Yokohama Rubber Company, a subsidiary of the B. F. Goodrich Company, has left Akron after a month's visit to return to Japan. He was a guest at the meeting of the Akron Rubber Group of the American Chemical Society on December 9.

PAUL D. LOVETT has been appointed as manager of export advertising of the United States Rubber Company, according to an announcement by WILLIAM F. EARLS, director of advertising. An alumnus of Colby College, Mr. Lovett has served in advertising and sales promotion work successively with Dodge Brothers, Durant Motors, Mack Trucks, Inc., and the General Motors Corporation. For the past two years he was in charge of advertising for General Motors of Argentina at Buenos Aires.

L. R. JACKSON, general sales manager, and B. M. ROBINSON, assistant secretary of the Firestone Tire & Rubber Company, have been elected directors of the company, increasing the board from seven to nine members. Other directors were reelected.

V. R. JACOBS, assistant manager of the aeronautics department of the Goodyear Tire & Rubber Company, spoke at a meeting of the Traffic Club at Canton, O., on December 3. His subject was "Airships—Past, Present and Future."

WILLIAM R. STUHLER of the research staff of the Firestone Tire & Rubber Company and former secretary to HARVEY S. FIRESTONE, president of the company, left that organization on December 16 to become associated with Batten, Barton, Durstine & Osborne, New York City advertising agency. His future activities will be in radio advertising work.

A. R. BRANDT, formerly with the Rubber Recovery Company, Akron, O., and more recently with the Akron Rubber Reclaiming Company, Barberton, O., is now general manager of the Montauk-Coronado Rubber Company, 3012 Clybourn Avenue, Chicago, Ill., manufacturers of sponge rubber products.

HARRY A. HUSTED, designer of the Husted hard rubber steering wheel, is reported to be planning for a non-stop flight from San Francisco to Hongkong in a four-motored Fokker transport plane. He will carry a crew of eight and will make a flight from New York to San Francisco as a test before the take-off for the trans-Pacific hop next June.

O. S. HART, cashier of the Seiberling Rubber Company since its organization eight years ago will retire from active business on January 1. Mr. Hart is 68 years old and was previously associated with the Diamond Rubber Company for 12 years and with the Goodyear Tire & Rubber Company for six years.

WILLIAM R. GOUDIE, well known in mechanical rubber circles on the Pacific coast, has recently taken a position with the Pioneer Rubber Mills as manager of industrial sales. Mr. Goudie will make his headquarters at the general offices in San Francisco, Cal.

# Current Crude Rubber Items

## WORLD RUBBER STOCKS CONTINUE TO INCREASE

In the month ended October 31, stocks of crude rubber throughout the world increased by nearly 14,000 tons, according to a table compiled by Henry Gardner & Company, London brokers. At the end of October, world rubber stocks were figured at 292,120 tons, as compared with 278,131 tons at the end of September and with 237,808 tons at the end of October, 1928.

Since the end of June, when stocks were at 260,129 tons, there has been a steady rise of 32,000 tons at world rubber centres, bringing stocks to their highest total for the year. The previous high figure for stocks this year was at the end of February, when a total of 279,233 tons was reported.

The figures of Henry Gardner & Company include the usual dealers' and estate stocks in the Far East and at Para and Manaos, stocks on hand and afloat to the United States, and London and Liverpool stocks. In addition, they contain inventory figures for Amsterdam, Antwerp and Hamburg.

## STOCKS OF LATEX CREPE EXCEED SMOKED SHEETS

Contrary to general belief, the chief grade of crude rubber held by dealers in the Far East is first latex crepe and not ribbed smoked sheets, the standard grade of rubber largely employed in tire manufacture. A report to the Rubber Exchange by cable placed stocks of crepe in dealers' hands at the close of November at 15,919 tons, and ribbed smoked sheets, 13,121 tons.

Stocks of unsmoked sheet totaled 1,978 tons, and "lump and scrap," rubber, 1,530 tons. Total dealers' stocks were 32,548 tons, of which the largest quantity, 25,429 tons, were held by dealers at Singapore.

## Rubber Grows in Florida

Rubber trees planted in Florida have made rapid growth in the past two seasons, and many of the young trees attained a height of 15 feet or more, according to Dr. W. A. Taylor, chief of the Bureau of Plant Industry. No frost injury occurred last winter, and this is described as an indication that the rubber plants are more resistant to cold than was supposed. Dr. Taylor says that the results of the rubber experiment in Florida are "very encouraging," especially with the *Hevea Braziliensis*.

## DUTCH RUBBER GROWER IMPROVES TREE TAPPING

A former Dutch rubber grower, Jules Bosch, of Java, after twelve years of experimentation claims to have made the following discoveries, which should have an important bearing on rubber cultivation in the future:

(1) A new tapping knife, precluding the possibility of injuring trees.

(2) A new tapping method, greatly differing from the present system, which Mr. Bosch, after extensive experiments, has found to have resulted in a much higher latex volume with the maintenance of the health of the trees.

(3) New tapping time (also based on long years of experiments)—three days' rest, which, combined with the two above-mentioned factors, has resulted in Mr. Bosch deriving from a number of experimental trees a production more than twice as great as from the present methods.

A rubber estate in East Java is shortly starting experiments on a large scale with Mr. Bosch's discoveries. If the trials are successful, the three discoveries, it is claimed, will mean a striking change in rubber cultivation, resulting in largely increased production and consequently lower production costs.

## NATIVE RUBBER REPORT IS MADE TO THE R. G. A.

A report on the position of native rubber cultivation in the Dutch East Indies has been made to the Rubber Growers' Association by V. A. Taylor and John Stevens, who were commissioned with this investigation a year ago. The potential yield for 1929 from the four countries visited—Pontianak, Banjermasin, Palembang and Jambi—is estimated at 76,000 tons, gradually rising to 220,000 tons by 1933, but with rubber between 9d. and 1s. a pound it is not thought that these possible outputs will be realized. At 1s. a pound, the present outputs, except perhaps in Jambi, will probably increase gradually, and would continue as the price rose to 1s. 6d., which figure would appear to be sufficient to bring out all or nearly all the potential output so far as labor permitted.

Only in Jambi was there any definite evidence of an insufficiency of labor to tap the existing producing area, and it is stated that there is no reason to assume that in the other three countries labor would not be quickly forthcoming to tap all the planted rubber, given sufficiently attractive prices. With the low prices ruling in the last fifteen months, planting has declined steadily, and, except in Jambi, has now almost ceased; but the possibilities of future expansion of the planted area are almost unlimited.

It is not thought likely, however, that much further planting will be done unless the price rises adequately. On the assumption that the four countries visited export 70 per cent of the native rubber from the Dutch East Indies, the total potential output for 1929 from that territory would be about 108,500 tons.

## Java Produce Crop Is High

A report for the period ended June 30, 1929, covering 18 months for the Java Rubber & Produce Company and 15 months for the Djaboong Java Rubber Estates, shows a total trading profit of £24,282. The rubber crop was 1,622,695 pounds, as compared with an estimate of 1,600,000 pounds. For 1929-30, however, the company estimates its rubber crop at only 1,204,680 pounds.

W. D. HINES, financial representative of the Firestone Tire & Rubber Company in Liberia, was a speaker before the luncheon meeting of the Kiwanis Club of Kent, O., on November 21. He discussed the activities of his company in Liberia, stating that the first rubber crop would be produced there in 1930 with steady annual increases.

## *Closing Prices on Rubber Exchange of New York, Inc.*

FROM DECEMBER 4 TO DECEMBER 17, 1929

| | | Spot | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Sales* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. | 4 | 16.20 | 16.00 | 16.30 | 16.60 | 16.90 | 17.10 | 17.30 | 17.50 | 17.80 | 18.00 | 18.20 | 18.40 | 18.60 | 122 |
| | 5 | 16.20 | 16.10 | 16.30 | 16.60 | 16.90 | 17.10 | 17.30 | 17.50 | 17.80 | 18.00 | 18.10 | 18.30 | 18.50 | 290 |
| | 6 | 16.20 | 16.00 | 16.30 | 16.60 | 16.90 | 17.10 | 17.30 | 17.50 | 17.70 | 17.90 | 18.10 | 18.30 | 18.50 | 194 |
| | 7 | 16.20 | 16.10 | 16.30 | 16.60 | 16.90 | 17.10 | 17.30 | 17.50 | 17.70 | 17.90 | 18.10 | 18.30 | 18.50 | 19 |
| | 9 | 16.20 | 16.10 | 16.40 | 16.70 | 17.00 | 17.20 | 17.50 | 17.70 | 17.90 | 18.10 | 18.30 | 18.50 | 18.70 | 222 |
| | 10 | 16.30 | 16.20 | 16.50 | 16.80 | 17.10 | 17.30 | 17.60 | 17.80 | 18.00 | 18.20 | 18.40 | 18.60 | 18.70 | 230 |
| | 11 | 16.40 | 16.30 | 16.50 | 16.80 | 17.20 | 17.40 | 17.60 | 17.80 | 18.10 | 18.30 | 18.40 | 18.60 | 18.80 | 204 |
| | 12 | 16.30 | 16.10 | 16.30 | 16.60 | 17.00 | 17.10 | 17.30 | 17.50 | 17.70 | 17.80 | 18.00 | 18.20 | 18.40 | 357 |
| | 13 | 16.30 | 16.20 | 16.30 | 16.60 | 16.90 | 17.10 | 17.30 | 17.50 | 17.80 | 17.90 | 18.10 | 18.30 | 18.40 | 194 |
| | 14 | 16.30 | 16.20 | 16.30 | 16.50 | 16.90 | 17.00 | 17.20 | 17.40 | 17.70 | 17.90 | 18.00 | 18.30 | 18.40 | 177 |
| | 16 | 16.20 | 16.00 | 16.20 | 16.40 | 16.70 | 16.90 | 17.10 | 17.30 | 17.60 | 17.80 | 18.00 | 18.20 | 18.40 | 256 |
| | 17 | 16.20 | 16.00 | 16.20 | 16.40 | 16.60 | 16.80 | 17.10 | 17.30 | 17.50 | 17.70 | 17.90 | 18.00 | 18.20 | 224 |

*In lots of 2½ tons each

INTERNATIONAL PULP CO., *41 Park Row, New York, N. Y.*
SOLE PRODUCERS OF PURE **ASBESTINE** SPECIALLY PREPARED FOR USE IN RUBBER
Covered and Protected by Letters Patent Registered at U. S. Patent Office, Washington, D. C.
LIBERAL WORKING SAMPLE FURNISHED FREE

# Rubber Goods and Specialties

## Fisk Puncture-Sealing Tube

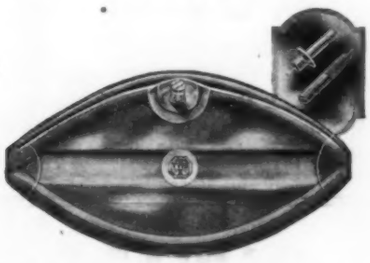
Production of a new puncture-sealing automobile inner tube has been started by the Fisk Rubber Company, Chicopee Falls, Mass. The feature of this tube is a heavy compression strip made of specially prepared rubber firmly united to the tube body under the dome and extending well down into the sides. The compression strip is united with the

Cross Section of Tire
Showing Puncture Sealing Tube
(A) Tube
(B) Compression Strip Firmly united to dome of tube — an integral part of the tube that furnishes the puncture sealing feature — Note that it extends well down the side of the tube.

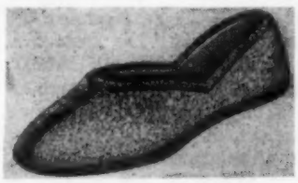
tube when the tube is on the mandrel, inside out. When the tube is removed from the mandrel, it brings the compression strip on the inside. If the tube is punctured or pierced in service, the compression of the rubber under the dome will immediately seal up the perforation after removal of the cause of puncture. By maintaining air pressure and eliminating the necessity of changing tires as a result of flats, this new product will contribute to longer tire life, according to the manufacturer.

## Basketball Bladder

Realizing that certain types of basketball bladders were being severely abused by overdistension and by foreign matter getting in between the cover and the bladder, the Tyer



Rubber Company, Andover, Mass., has designed a bladder which is claimed to possess twice the tensile strength and perhaps three times the ageing qualities of former types. The new bladder is provided with the official Schrader valve, and the manufacturer has utilized a method of molding in the Schrader valve so that there is no possibility of separation at this point. The company also makes stem type bladders for basketball, soccer and other sport balls.

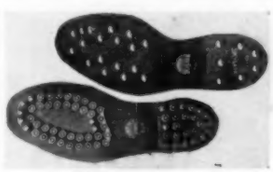


## Sponge Rubber Slipper

Sponge rubber is being utilized as the material for a line of slippers now being placed on the market by the Sponge Rubber Company, Inc., New York City. They are made in a variety of brilliant colors for men, women and children, and are considered an especially adapted for use as bath or beach slippers, according to the manufacturer. The use of sponge rubber for this purpose is believed to be an innovation in the making of this type of footwear.

## Essex Sport Soles

To its present line of sport soles, the Essex Rubber Company, Trenton, N. J., is adding two new styles in the Trophy Tread and the Skylark. Both are designed for use on men's shoes. The Trophy Tread is a practical sport sole for all-around use and at the same time an out-and-out golf sole that combines quality with ease and comfort



in wearing. The Skylark is said by the manufacturer to have all the advantages of leather without its discomforts. It is equipped with cleats that grip, yet which can be worn over the polished floor of the club house.

## Rubber-Lined Neckties

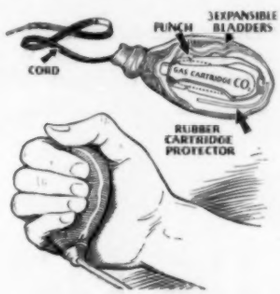
In neckties which have a rubber lining, patented by H. Frank of London, England, the rubber is slit, slotted, or otherwise mutilated to facilitate the formation of the knot. The rubber lining has its edges slit and is also provided with slots. One of more inextensible tapes may be provided to limit the extension of the rubber lining, these tapes being normally slightly longer than the lining.

## Blotting Pad Protector

An edge protector for a blotting pad, recently patented by H. Altoun, Hastings, England, consists of a doubled strip of rubber or other material, having on the upper part tapering or square tongues for entering the corner pockets, the lower part being loose or arranged between the base and the bottom sheet, or secured under the base by adhesive or fasteners. The bottom part may be provided with a friction surface of rubber, felt or the like and may cover the base.

## "Floats-U" Life Saver

A novel safety device for swimmers or other persons whose occupations take them near the water, the "Floats-U" Life Saver consists of a gas cartridge, encased in three expansible bladders to insure against any possible imperfections in the rubber. In emergencies, the bulb is squeezed with the hand, the carbon dioxide cartridge is punc-




tured by two spurs in the punch, which releases the gas and instantly expands the bladder. The bladder holds sufficient gas to float any person, regardless of weight. The device may be attached to the bathing suit or to any part of the clothing, and it is said to work equally well whether worn exposed or concealed. The makers are the Associated Manufacturers, 920 West 39th street, Los Angeles, Cal.

## Submarine Watertight Pocket

Under the name of the Submarine Watertight Pocket, the Waterproof Pocket Corporation, 5 West 22nd street, New York City, is marketing a small airtight rubber container that can be attached to the belt of a bathing suit to carry cigarettes, matches, handkerchiefs, cosmetic compacts

or watches. This pocket is closed when in use by the same tight sealing clasp that the company employs on its self-inflating Airpillo. A loop is provided for attaching it to the bather's belt, but the pocket may also be built into the bathing suit.

Ash trays and mirrors for automobiles are being offered in England, fitted with a rubber suction disc so that they can be attached to the interior of the car in the most convenient position and removed at will. They are made of unbreakable material in several attractive color schemes.

## RUBBER MANUFACTURERS AT TRENTON EXPOSITION

Several of the rubber manufacturers of Trenton, N. J., maintained large displays of goods in the exhibit of the Trenton Industrial Exposition at the local armory recently. The Essex Rubber Company showed a miniature rubber plantation, illustrating the huts of the natives who gather the latex, while the Joseph Stokes Rubber Company showed hard rubber goods in the process of manufacture.

The Combination Rubber Company's exhibit had tire builders at work, and the display of the Thermoid Rubber Company depicted the making of brake lining. Others who had exhibits were the Woven Steel Hose & Rubber Company, William R. Thropp Sons Company, John E. Thropp Sons Company, Puritan Rubber Company, Luzerne Rubber Company, Home Rubber Company and the Acme Rubber Company.

## Du Pont to Expand Plants

E. I. du Pont de Nemours & Company, Wilmington, Del., has announced that it will spend more than $25,000,000 on building projects in 1930. Of this amount, $4,000,000 is to be spent for betterments to and expansions of Grasselli Chemical Company plants throughout the country, the most important individual item in this expenditure to be $1,500,000 at Grasselli, N. J. The fabrics and finish department will spend about $2,250,000 at Newburgh, N. Y., Parlin, N. J., and Fairfield, Conn., where the rubber products division of the company is located.

## Ashland Tire Plant Sold

Stockholders on November 12 approved the sale of the Ashland Tire & Rubber Company plant at Ashland, O., to the Union Malleable Manufacturing Company, makers of pipe fittings. The price was reported to be but a fraction of the original cost which was between $250,000 and $300,000. The plant, built 10 years ago, included a main building, power house, warehouse and four acres of ground. Until a year or two ago the plant was leased and operated by the Mansfield Tire & Rubber Company, Mansfield, O., and was turning out 1,800 tires a day.

## Trenton Business Slows Up

The United States Labor Department has announced that there has been a slight recession during the early fall in rubber plants in Trenton, N. J., manufacturing mechanical goods. Some of the Trenton manufacturers report that business in the mechanical line has dropped off a little, but state that this was to be expected at this time of the year. The production of tires and tubes continues to be normal, while factories are busy with brake lining and hard rubber goods.

**The Philadelphia Rubber Works Company**

Manufacturer of

**RECLAIMED RUBBER**

of

**STANDARDIZED QUALITY**

NEW YORK
52 Vanderbilt Ave.

AKRON, OHIO

OAKS, PA.
(Montgomery County)

### EQUIPMENT FOR SALE

**FOR SALE—Complete equipment of the Paru Rubber Manufacturing Company, manufacturers of rubber hygienes for the rubber trade. Write to O. O. Uhle, Executor of the O. C. Hansen Estate, 2505 Magnolia Street, Oakland, California.**

Consulting Rubber Technologist

**PRACTICAL**

Twenty years' experience with the largest and most successful companies in the country

Physical and Chemical Testing
Special facilities for abrasion and quick age tests

Expert Advice to Correct Factory Trouble

New Processes and Formulas Developed

**R. R. Olin Laboratories**
P. O. Box 272, AKRON, OHIO
Telephones: Barberton 828, Portage 5895W

**CATALPO**

**for**

**Cushion Stocks**

FLUXRITE

*PRACTICAL SOFTENERS*

INVESTIGATIONS INVITED

*YouCannot Afford to Be Without Them*

DAMASCUS MANUFACTURING CORP.

CLEVELAND, OHIO

NEW JERSEY TERRITORY: H. M. Royal, Inc., Trenton

**EMBOSSING CALENDERS**

For Artificial Leather, Oil Cloth,
Carriage and Automobile Covers

**DRYING MACHINES**

with Copper or tinned iron Cylinders for Cotton Ducks, Drills and Sheetings

**The Textile-Finishing Machinery Co.**

OFFICE, No. 83 EXCHANGE PLACE
PROVIDENCE, R. I.

**The Franz Foundry & Machine Co.**

AKRON, OHIO

Mold Equipment
Retread Equipment
Engraving Machines
India Core and Chucks
India Self-Acting Drums
Watchcase Vulcanizers
General Machine Work

WHITTAKER

ESTABLISHED 1890

*Standard for 39 years*

MINERALS-COLORS
CHEMICALS

**Whittaker, Clark & Daniels, Inc.**

IMPORTERS—MANUFACTURERS—EXPORTERS
245 FRONT ST. NEW YORK CITY

**SCOTT TESTERS**

Simple enough to be practical. Free from complications and adjustments. Substantial and durable. As well as accurate, easy to read and easy to operate, Scott Testing Machines meet commercial requirements and conditions without sacrificing scientific exactness.

**HENRY L. SCOTT COMPANY**

PROVIDENCE, R.I.

*The*

GENERAL

TIRE

*—goes a long way to make friends*

BUILT IN AKRON, OHIO, BY THE GENERAL TIRE AND RUBBER CO.

# LATE MARKET PRICES

## Crude, Scrap & Reclaimed Rubber - Cottons and Fabrics

**NEW YORK, DECEMBER 17, 1929**

## COTTON

THE final cotton crop estimate issued by the Department of Agriculture is 14,919,000 bales of 500 pounds gross weight. This is in line with previous private estimates and, therefore, had little direct effect upon the market for the commodity. If anything, it was a trifle higher than had been anticipated and helped to induce the liquidation which has carried price quotations downward during the past fortnight.

The spot price for middling upland cotton on the New York market, which closed the last fortnight at 17.55 cents a pound on December 3, has since declined steadily and on December 16 again touched its low point for the year at 17 cents. Cotton for December delivery closed the period at 16.85 cents a pound, as compared with a price of 17.37 cents on December 3. At the close, there appeared to be no sign of an appreciable advance.

The figures of the Textile Institute on sales, production and shipments have been far from encouraging, and advices from abroad do not indicate an end to the depression which has prevailed. Meanwhile, the activities of the Federal Farm Board are considered as likely to prevent any radical declines in the price of the commodity.

High, low and closing prices on the New York Cotton Exchange on December 17 were as follows:

| | High Dec. 17 | Low | Close | Close Dec. 3 |
|---|---|---|---|---|
| Dec. | 16.90 | 16.80 | 16.85 | 17.37 |
| Jan. | 16.94 | 16.83 | 16.87 | 17.48 |
| Mar. | 17.23 | 17.11 | 17.17 | 17.77 |

## Tire Fabrics

Tire fabrics continued quiet through the fortnight, with only limited amounts of goods sold and with curtailments effective in many mills. Late prices were as follows:

| | | | |
|---|---|---|---|
| **CORD** | | | |
| Peeler carded, 28/5/3 | lb. | .44¾@ | .45 |
| Peeler, carded, 28/4/3 | lb. | .46¾@ | .47 |
| Peeler, carded, 18/3/3 | lb. | .42¼@ | .42½ |
| Peeler, carded, 15/3/3 | lb. | .42¾@ | .43 |
| Egyptian, carded, 28/5/3 | lb. | .49 @ | .49¼ |
| Egyptian, combed, 28/5/3 | lb. | .55 @ | .55½ |
| **CHAFERS** | | | |
| Carded, American, 8 oz. | lb. | .37½@ | .38½ |
| Carded, American, 10 oz. | lb. | .38½@ | .39 |
| Carded, American, 12 oz. | lb. | .38 @ | .39 |
| Carded, American, 14 oz. | lb. | .37 @ | .43 |
| **LENO BREAKER** | | | |
| Carded, American, 8¼ oz. | lb. | .39 @ | .43 |
| Carded, American, 10¼ oz. | lb. | .39 @ | .43 |
| **SQUARE WOVEN** | | | |
| Carded, American, 17¼ oz. 28-11 ply | lb. | .44½@ | .45½ |
| Carded, American, 17¼ oz. 10-ply | lb. | .37½@ | .38½ |

## Sheetings

Late sheeting prices, showing general declines, are reported as follows by the Textile Brokers Association:

| | | | |
|---|---|---|---|
| 40-inch, 2.50-yard | yd. | .11¾@ | .12 |
| 40-inch, 2.85-yard | yd. | .10⅞@ | .10¼ |
| 40-inch, 3.15-yard | yd. | — @ | .11 |
| 40-inch, 3.60-yard | yd. | — @ | .09 |
| 40-inch, 3.75-yard | yd. | — @ | .08½ |
| 40-inch, 4.25-yard | yd. | — @ | .07½ |

## Ducks

Cotton ducks have continued unchanged and quiet during the past two weeks. The curtailments planned for a good part of the first quarter of 1930 during the period sufficed to revive interest to a degree, but trading was not in sufficient volume to materially improve the currently easy situation in prices on most types of goods. Latest prices follow:

| | | | |
|---|---|---|---|
| Belting and Hose | lb. | — @ | .36 |
| Enameling | lb. | .34 @ | .36 |
| Single filling | lb. | .14½@ | .15½ |
| Double filling | lb. | — @ | .17 |

## RECLAIMED RUBBER

Despite an apparent gain in consumption over production, stocks of reclaimed rubber were estimated by the Rubber Manufacturers Association as higher on November 30 than on October 31. According to the association statistics, raised to a 100 per cent basis, production during November was 14,363 tons and consumption 15,330 tons. This compares with October production and consumption figures of 18,865 tons and 18,744 tons, respectively. Stocks on hand by the end of November were reported as 26,080 tons, as compared with domestic stocks at the close of October of 25,117 tons. Price quotations at the end of the fortnight were as follows:

| | | | |
|---|---|---|---|
| ***High Tensile*** | | | |
| Super-Reclaim No. 1 Black | lb. | .12 @ | .12¼ |
| High Tensile Red | lb. | .11 @ | .11½ |
| ***Shoe*** | | | |
| Unwashed | lb. | .07 @ | .07¼ |
| Washed | lb. | .09½@ | .10 |
| ***Tube*** | | | |
| No. 1 (Floating) | lb. | .12 @ | .12½ |
| No. 2 (compounded) | lb. | .09½@ | .10 |
| ***Tires*** | | | |
| Black | lb. | .07 @ | .07¼ |
| Black, selected tires | lb. | .07¼@ | .07½ |
| Dark Gray | lb. | .08¾@ | .09 |
| Light Gray | lb. | .09¾@ | .10¼ |
| White | lb. | .11½@ | .12 |
| Truck, Heavy Gravity | lb. | .07 @ | .07¼ |
| Truck, Light Gravity | lb. | .07¼@ | .07½ |
| ***Miscellaneous*** | | | |
| Mechanical blends | lb. | .06½@ | .07 |
| Red | lb. | .11¼@ | .12 |

## Scrap Rubber

Despite the lower prices for crude rubber, reclaim appears to be used in increasingly greater proportions. During November, the consumption of reclaimed rubber was equal to 55.4 per cent of the crude rubber tonnage consumed, as compared with a percentage of 53.8 in October and 49.2 in September. This is regarded as a favorable sign by scrap rubber factors who look for a satisfactory year in 1930. Late prices follow:

**(Prices to Consumer)**

| | | | |
|---|---|---|---|
| Auto tire peelings | ton | 35.00 | @37.50 |
| Standard White auto | ton | 45.00 | @47.50 |
| Mixed auto | ton | 22.50 | @23.00 |
| Bicycle tires | ton | 18.50 | @20.00 |
| Clean solid truck tires | ton | 24.00 | @25.00 |
| Boots and shoes | cwt. | 1.45 | @ 1.50 |
| Arctics, untrimmed | lb. | .00⅞@ | .01 |
| Inner tubes, No. 1 | lb. | .07¾@ | .08 |
| Inner tubes, No. 2, compounded | lb. | .04¼@ | .04¼ |
| Inner Tubes, Red | lb. | .04¼@ | .04⅝ |
| Air Brake Hose | ton | 25.00 | @27.50 |
| Rubber Hose | ton | 17.50 | @20.00 |

## CRUDE RUBBER

PRICE quotations for crude rubber during the first half of December indicate that the average for this month will be still lower than for November and, therefore, the lowest since September, 1922. On eight of the fourteen trading days up to December 17, the closing spot price for ribbed smoked sheets was 16¼ cents a pound. During the second week of the month, quotations rallied slightly, but returned to the figure with which the month commenced.

At the close on December 17, prices were fractionally higher for spot rubber and the near deliveries than at the end of the previous fortnight, but the more distant positions showed slight declines. The market has continued to be without feature, and manufacturers give no indication of making appreciable purchases at the present time. While the larger factors are fairly well supplied and have, possibly, sufficient stocks for the first quarter of the coming year, many of the smaller factories are expected to come into the market in the near future.

As regards domestic consumption of crude rubber and the output of tires and other rubber goods, the year 1930 will probably be behind the high records of 1929 but still ahead of 1928. Automobile production this year has been slightly over 5,400,000 units in the United States and during 1930 should be in the neighborhood of 4,800,000 units. Demand for tires for original equipment will, therefore, be somewhat less than in 1929, but the market for replacement business will be larger.

The supply of crude rubber for next year appears to be more than adequate at the present time. At some future time consumption may catch up to or even surpass production, but this is not likely to happen in 1930 or 1931. Brokers are agreed that there is nothing in prospect which would warrant crude rubber prices at higher levels.

Prices quoted on the New York outside market on December 17 were as follows:

| | | | |
|---|---|---|---|
| Ribbed Smoked Sheets— | | | |
| Spot-Dec. | .16¼@ | .16⅝ | |
| Jan.-Mar. | .16⅝@ | .16⅞ | |
| Apr.-June | .17 @ | .17⅛ | |
| First Latex, crepe spot | .17 @ | .17¼ | |
| Amber Crepe, No. 2 | .14¼@ | .14½ | |
| Amber Crepe, No. 3 | .14 @ | .14¼ | |
| Amber Crepe, No. 4 | .13½@ | .13⅝ | |
| Brown Crepe, Clean thin | .13⅜@ | .14¼ | |
| Brown Crepe, specky | .13¼@ | .13⅝ | |
| Liquid Latex, per gal. | .90 @ | | |
| ***Paras—*** | | | |
| Up-river Fine | .16 @ | — | |
| Up-river Medium | Nominal | | |
| Up-river Coarse | .08½@ | — | |
| Acre Bolivian, fine | .16¼@ | — | |
| Caucho Ball, Upper | .08½@ | — | |
| Islands, fine | Nominal | | |
| ***Centrals—*** | | | |
| Central, scrap | .08¼@ | — | |
| Esmeraldas | .08¼@ | — | |
| ***Balata—*** | | | |
| Block, Colombia | Nominal | | |
| Block, Ciudad | .51 @ | .52 | |

### LONDON MARKET

| | | | |
|---|---|---|---|
| Standard Ribbed Smoked Sheets—Buyers | | | |
| Spot-Dec. | 7⅞@ | 8d | |
| Jan.-Mar. | 8 @ | 8⅛d | |
| Apr.-June | 8⅛@ | 8⅛d | |

### SINGAPORE MARKET

| | | | |
|---|---|---|---|
| Spot | 7¾@ | 7¾d | |

## For Rubber Compounding

C.K. WILLIAMS & CO. ANCHOR BRAND DRY COLORS AND FILLERS EASTON, PA. U.S.A.

IRON OXIDES

Asbestine
Barytes
Soapstone
Talc

C. K. WILLIAMS & CO.
EASTON, PA.

SINCE 1880 GUARANTEED

Rand RUBBER GOODS

| | |
|---|---|
| Dress Shields | Pure Rubber Sheets |
| Rubber Sheetings | Rubber Bibs |
| Bunny Baby Pants | Crib Sheets |
| Sanitary Requisites | Bathing Caps |
| Guimps & Brassieres | Rubber Specialties |
| Randprint Aprons | Powder Puff Pockets |
| All Styles Rubber Aprons | Randprint Rubber |

SHEET GUM cut to pattern for manufacturers

"They Last Longer"

Made by
RAND RUBBER COMPANY, Inc.
Formerly Brooklyn Shield & Rubber Co., BROOKLYN, N. Y.

## ALUMINUM FLAKE

Standard to the Rubber Industry for 20 Years

ALUMINUM FLAKE *has*

—Low specific gravity
—Extreme fineness
—Exceptional reinforcing and toughening qualities
—Absolute uniformity and purity

*Write for information and samples to*

THE ALUMINUM FLAKE CO.
AKRON OHIO

*Agents*

The American Oil and Supply Co. - Trenton, N. J.
Wm. H. Scheel and Co. - - - New York, N Y.
Schofield-Donald, Ltd. - Montreal, P. Q., Canada
The Kawanishi Exporting Co. - - Kobe, Japan
Typke and King - - - - - - London, England

*There is only one Aluminum Flake-We Make It!*

## REVUE GÉNÉRALE DU CAOUTCHOUC

A monthly review edited by the Rubber Association, 18 rue Duphot, Paris (1er)

*Only officially accredited publication in France*

CONTAINS ORIGINAL CONTRIBUTIONS FROM FRENCH TECHNOLOGISTS. TECHNICAL AND COMMERCIAL INFORMATION. NEWS OF THE RUBBER TRADE.

Price of annual subscription: 80 Frs.

*Specimen copy sent free on request*

All Rubber Technologists should read:

THE ENCYCLOPAEDIA of the RUBBER AND ALLIED INDUSTRIES

25 collaborators—500 pages—300 illustrations. Edited by the Rubber (and allied industries) Association, 18 rue Duphot, Paris (1er)—Preface by M. Ch. Jung, President of the Association, Member of the Chamber of Commerce.

Price: 125 Francs ($5.00)

*The Unexcelled Softener*

ARLINGTON MILLS

## DEGRAS

PURE WOOL GREASE

The Ideal Emollient for overcoming the surface tension of carbon black and effecting its complete and rapid dispersion in the rubber stock.

**W. L. Montgomery & Co.**
Sole Selling Agents
10 HIGH ST. BOSTON, MASS.

*The* CARTER BELL MFG CO

CARTER BELL STANDARD SINCE 1903 RUBBER SUBSTITUTES

150 Nassau Street New York

# LATE RUBBER CHEMICAL PRICES

## Accelerators — Colors — Softeners — Compounding Materials

NEW YORK, December 18.—Slight declines in prices quoted for rosin and turpentine have been the only noticeable developments of the month. The lower prices for carbon blacks still prevail, but in all other types of compounding ingredients and rubber chemicals the new year is approached with firmness in prices and with fairly general optimism. Several of the leading companies in the industry are preparing for what they consider will be an excellent year and are, therefore, furthering plant expansions and increasing appropriations for their sales forces.

The Titanium Pigment Company, Inc., New York City, has changed the names of its products, Titanox and Titanium Calcium Pigment, to Titanox B and Titanox C, respectively.

### ACCELERATORS

Organic

| | | | | |
|---|---|---|---|---|
| A-1 | lb. | .24 | @ | .27 |
| A-5-10 | lb. | .33 | @ | .36 |
| A-7 | lb. | .55 | @ | .59 |
| A-11 | lb. | .52 | @ | .56 |
| A-16 | lb. | .57 | @ | .61 |
| A-19 | lb. | .58 | @ | .62 |
| A-20 | lb. | .64 | @ | .68 |
| A-32 | lb. | .90 | @ | .95 |
| **Aldehyde ammonia, crystals** | lb. | .65 | @ | .70 |
| Aniline oil, drums, f.o.b. works | lb. | .15 | @ | .16¼ |
| Cryiene | lb. | .55 | @ | .65 |
| paste | lb. | .45 | @ | .55 |
| Di-Ortho-Tolyguanidine | lb. | .42 | @ | .44½ |
| Diphenylguanidine | lb. | .30 | @ | .32½ |
| Dipsol | lb. | 4.30 | @ | 4.50 |
| **Ethylidene aniline** | lb. | .45 | @ | .47½ |
| **Formaldehyde aniline** | lb. | .37½ | @ | .40 |
| Heptene | lb. | .40 | @ | — |
| **Hexamethylene-tetramine** | lb. | .58½ | @ | .61 |
| Lithex | lb. | .18 | @ | .20 |
| **Methylenedianiline** | lb. | .37½ | @ | .40 |
| Monex | lb. | 3.25 | @ | — |
| **Oxynone** | lb. | .68 | @ | .80 |
| Phenex | lb. | .75 | @ | — |
| R & H 40 | lb. | .40 | @ | .42½ |
| R & H 50 | lb. | .40 | @ | .42½ |
| R & H 397 | lb. | .75 | @ | .77½ |
| R-2 | lb. | 1.95 | @ | 2.15 |
| Safex | lb. | 1.20 | @ | 1.25 |
| SPDX | lb. | .75 | @ | — |
| **Tensilac, No. 39** | lb. | .40 | @ | .42½ |
| Tensilac, No. 41 | lb. | .50 | @ | .52½ |
| Thermio F | lb. | .50 | @ | .55 |
| **Thiocarbanilid, drums** | lb. | .25½ | @ | .28½ |
| Trimene | lb. | .75 | @ | — |
| base | lb. | 1.20 | @ | — |
| **Triphenylguanidine** | lb. | .58 | @ | .62½ |
| **Ureka** | lb. | .75 | @ | 1.00 |
| **Vulcanex** | lb. | | | |
| Vulcone | lb. | | | |
| Vulcanol | lb. | | | |
| **Z 88** | lb. | .50 | @ | .60 |

Inorganic

| | | | | |
|---|---|---|---|---|
| **Lead, sublimed blue** | lb. | .08¼ | @ | — |
| Lead, white | lb. | .08½ | @ | .08¾ |
| **Litharge, domestic** | lb. | .09¼ | @ | .11 |
| **Magnesia, calcined,** | | | | |
| light | per 100 lb. | 5.35 | @ | 5.45 |
| heavy | per 100 lb. | 3.65 | @ | 3.75 |

### COLORS

**Blacks (See Compounding Materials)**

**Blues**

| | | | | |
|---|---|---|---|---|
| Prussian | lb. | .35 | @ | .36 |
| Ultramarine | lb. | .06 | @ | .30 |

**Browns**

| | | | | |
|---|---|---|---|---|
| Sienna, Italian | lb. | .05½ | @ | .12½ |
| Umber, Turkey | lb. | .04½ | @ | .07 |

**Greens**

| | | | | |
|---|---|---|---|---|
| Chrome, light | lb. | .30 | @ | .32 |
| medium | lb. | .31 | @ | .33 |
| dark | lb. | .34 | @ | .36 |
| Chromium Oxide, bbl. | lb. | .34½ | @ | .35½ |

**Reds**

| | | | | |
|---|---|---|---|---|
| **Antimony** | | | | |
| crimson, 15/17 | lb. | .40 | @ | .44 |
| sulfur, free | lb. | .56 | @ | .66 |
| golden 15/17 F.S. | lb. | .20 | @ | .25 |
| Indian English | lb. | .08 | @ | .11 |
| Domestic (Maroon) | lb. | .11 | @ | — |
| **Oximony** | lb. | .13¼ | @ | — |
| Red oxide, pure | lb. | .10 | @ | .12 |
| Venetian red | lb. | .03 | @ | .06 |
| Vermillion, quicksilver, English | lb. | 2.00 | @ | 2.05 |

**Whites**

| | | | | |
|---|---|---|---|---|
| **Lithopone, Akeolith** | lb. | .05 3/5 | @ | .06 |
| **Lithopone, Albalith** | lb. | .05¼ | @ | .05¾ |
| **Lithopone, Asolith** | lb. | .05¼ | @ | .05¾ |
| Lithopone, Vanolith | lb. | .05¾ | @ | — |
| Titanox B, f.o.b. St. Louis, | lb. | .08½ | @ | .09 |
| Titanox C, f.o.b. St. Louis, | lb. | .08 | @ | .08½ |

**Zinc Oxide—American Process**

| | | | | |
|---|---|---|---|---|
| **American Azo:** | | | | |
| **ZZZ (lead free)** | lb. | .06½ | @ | .07 |
| ZZ (leaded) | lb. | .06⅝ | @ | .06⅞ |
| Horsehead Brand: | | | | |
| Special | lb. | .07 | @ | .07½ |
| XX Green | lb. | .07 | @ | .07½ |
| **XX Red, lead free** | lb. | .06½ | @ | .07 |
| Kadox, black label | lb. | .10⅜ | @ | .10⅞ |
| blue label | lb. | .09⅜ | @ | .09⅞ |
| red label | lb. | .08 | @ | .08½ |

**Zinc Oxide—French Process**

| | | | | |
|---|---|---|---|---|
| White seal | lb. | .11⅜ | @ | .11⅞ |
| Green seal | lb. | .10⅜ | @ | .10⅞ |
| **Red seal** | lb. | .09⅜ | @ | .09⅞ |

**Yellows**

| | | | | |
|---|---|---|---|---|
| Chrome | lb. | .17 | @ | .17½ |
| **Ocher, French medium** | lb. | .02 | @ | .03 |
| domestic | lb. | .01¾ | @ | .02 |

### COMPOUNDING MATERIALS

| | | | | |
|---|---|---|---|---|
| Aluminum Flake | ton | 21.85 | @ | 24.50 |
| Ammonia carbonate, lump | lb. | .07½ | @ | .07¾ |
| Asbestine | ton | 14.75 | @ | 18.00 |
| Barium carbonate | lb. | .03½ | @ | .05 |
| Barium Dust | lb. | .05 | @ | .06 |
| Barytes southern off-color | ton | 12.00 | @ | 18.00 |
| Western prime white | ton | 23.00 | @ | — |
| imported | ton | 27.00 | @ | 36.00 |
| Basofor | lb. | .04½ | @ | — |

**Blacks**

| | | | | |
|---|---|---|---|---|
| Arrow "Aerfloted" | lb. | .07 | @ | .12 |
| Bone Black | lb. | .07 | @ | .08½ |
| **Carbon, compressed** | lb. | .06½ | @ | .12 |
| Carbon, uncompressed | lb. | .06½ | @ | .11 |
| Disperso, f.o.b. Louisiana | lb | .061 | @ | — |
| Disperso, f.o.b. Texas | lb. | .06 | @ | — |
| Drop Black | lb. | .06 | @ | .10 |
| Excello, compressed | lb. | .06½ | @ | .12 |
| Fumonex | lb. | .06 | @ | .09 |
| **Gastex** | lb. | .04½ | @ | .08 |
| Lamp Black | lb. | .12 | @ | .40 |
| Micronex | lb. | .07 | @ | .12 |
| United carbon, fob Tex. | lb. | .06 | @ | — |
| Velvetex carbon | lb. | .04½ | @ | .06 |
| Blanc fixe dry f.o.b. works | ton | 80.00 | @ | 90.00 |
| Carrara filler | lb. | .01¾ | @ | .02 |
| Catalpo (fact.) | lb. | .02 | @ | — |
| Clay, China, domestic | ton | 8.00 | @ | 9.00 |
| Aerfloted Suprex | ton | 10.00 | @ | 22.00 |
| Congaree, c. l. f.o.b. mine | ton | 9.00 | @ | — |
| Lexington | ton | 10.00 | @ | 22.00 |
| Mineral Flour, c. l. fob mine | ton | 20.00 | @ | 23.00 |
| **Tensulite** | | 15.00 | @ | — |
| Glues, extra white | lb. | .22 | @ | .26 |
| medium white | lb. | .20 | @ | .24 |
| Magnesia, carbonate | lb. | .08¾ | @ | .11 |
| Mica, white water grnd. | lb. | .06 | @ | .08 |
| Off color (biotite) | lb. | .05 | @ | .07 |
| Rotten Stone powdered) | lb. | .02 | @ | .05 |
| Soapstone, powdered | ton | 15.00 | @ | 22.00 |
| Starch, powdered | cwt. | 3.92 | @ | 4.12 |
| Talc domestic | ton | 12.00 | @ | 15.00 |
| Whiting, commercial | cwt. | 1.00 | @ | 1.25 |
| English cliffstone | cwt. | 1.75 | @ | 2.00 |
| Superfine | ton | 10.00 | @ | 12.00 |
| Witco | ton | 20.00 | @ | — |
| Zinc Carbonate | lb. | .09½ | @ | .10½ |
| Zinc Stearate | lb. | .23½ | @ | .25 |

### MINERAL RUBBER

| | | | | |
|---|---|---|---|---|
| Genasco (factory) | ton | 50.00 | @ | 52.00 |
| Paradura | ton | 62.50 | @ | 65.00 |
| Pioneer, MR, solid | ton | 40.00 | @ | 42.00 |
| Pioneer-granulated | ton | 50.00 | @ | 52.00 |
| R & H Hydro-Carbon | ton | 27.05 | @ | 29.00 |
| Robertson, MR, solid | ton | 34.00 | @ | 80.00 |
| M.R. (gran) | ton | 38.00 | @ | 80.00 |

### SOFTENERS

**Acids**

| | | | | |
|---|---|---|---|---|
| Nitric, 36 degrees | cwt. | 5.00 | @ | 5.25 |
| Sulfuric, 66° | cwt. | 1.60 | @ | 1.95 |
| **Tartaric, crystals** | lb. | .38 | @ | .38½ |

**Acids, Fatty**

| | | | | |
|---|---|---|---|---|
| **Stearex** | lb. | .15 | @ | .19 |
| Stearic, double pressed | lb. | .17 | @ | .22 |

**Alkalies**

| | | | | |
|---|---|---|---|---|
| Caustic soda, 76% | cwt. | 3.76 | @ | 3.91 |
| Soda ash, 58% C.L. | cwt. | 1.40 | @ | |

**Oils**

| | | | | |
|---|---|---|---|---|
| Corn, refined, bbls. | lb. | .09½ | @ | .10½ |
| Cottonseed, crude | | .07½ | @ | .09 |
| Cycline | gal. | .27 | @ | .34 |
| Degras (c.l. 100 bbls.) | lb. | .03¾ | @ | — |
| Less c. l. (10-25 bbls.) | lb. | .04 | @ | — |
| Lots less than 10 bbls. | lb. | .04¼ | @ | .04¼ |
| Fluxrite | lb. | .05½ | @ | .06½ |
| Palm Lagos | lb. | .07¾ | @ | — |
| Niger | lb. | .07½ | @ | — |
| **Para-Flux** | gal. | .17 | @ | — |
| Petrolatum, white | lb. | .08 | @ | .08½ |
| Pigmentaroil | gal. | .21 | @ | .26 |
| Pine, steam distilled | gal. | .65 | @ | .70 |
| destructively distilled | gal. | .63 | @ | .64 |
| Witco Palm Oil | lb. | .11 | @ | — |
| **Witco Softener (f.o.b. works)** | lb | .02 | @ | — |

**Resins and Pitches**

| | | | | |
|---|---|---|---|---|
| Pitch, Burgundy | lb. | .06½ | @ | .07½ |
| coal tar | gal. | .05½ | @ | .06 |
| pine, 200 lb. gr. wt. | bbl. | 9.00 | @ | 10.00 |
| Rosin, grade K, 280 lb. bbl. | | 8.75 | @ | — |
| Pigmentar | lb. | .038 | @ | .0445 |
| Tar Retort, 50 gal. | bbl. | 15.50 | @ | 15.00 |

**Solvents**

| | | | | |
|---|---|---|---|---|
| Acetone, pure | lb. | .12 | @ | .14 |
| Alcohol denatured, No. 1 bbls. | gal. | .52 | @ | — |
| Benzol, 90% | gal. | .23 | @ | .25 |
| Carbon bisulphide | lb. | .05½ | @ | .06¾ |
| Carbon tetrachloride | lb. | .06¼ | @ | .07 |
| Dryolene (f.o.b. Okla.) | gal. | .10 | @ | .10½ |
| Motor gasoline, steel bbls. | gal. | .16 | @ | — |
| Naptha, solvent | gal. | .35 | @ | .40 |
| Rub-Sol (f.o.b .Okla.) | gal. | .09 | @ | — |
| Turpentine, spirits | gal. | .53 | @ | .59 |
| wood | gal. | — | @ | .50 |
| destructively distilled | gal. | .40 | @ | .43 |

**Waxes**

| | | | | |
|---|---|---|---|---|
| Beeswax, white | lb. | .51 | @ | .53 |
| **Carnauba** | lb. | .35 | @ | .36 |
| Ceresin, white | lb. | .10 | @ | .11 |
| Montan, crude | lb. | .06½ | @ | .07 |
| Ozokerite, black | lb. | .24 | @ | .25 |
| green | lb. | .26 | @ | .30 |

**Paraffin (c. l.—f.o.b. N. Y.)**

| | | | | |
|---|---|---|---|---|
| **Yellow crude scale** | lb. | .03¾ | @ | |
| White crude scale 124/126 | lb | .04 | @ | |
| Refined, 125/127 | lb. | .05¾ | @ | |
| Refined, 128/130 | lb. | .05¼ | @ | |
| Refined, 135/137 | lb. | .07¾ | @ | |
| Refined, 138/140 | lb. | .08¼ | @ | |

### ANTI-OXIDANTS

| | | | | |
|---|---|---|---|---|
| **Albasan** | lb. | .70 | @ | .75 |
| **Antox** | lb. | | | |
| **Neozone** | lb. | | | |
| Oxynone | lb | .69 | @ | .80 |
| Resistox | lb. | .54 | @ | .60 |
| Stabilite | lb. | .57 | @ | .62 |
| Stabilite Alba | lb. | .70 | @ | .75 |
| VGB | lb. | .55 | @ | .66 |

### SUBSTITUTES

| | | | | |
|---|---|---|---|---|
| Black | lb. | .08 | @ | .14 |
| White | lb. | .10 | @ | .16 |
| Brown | lb. | .08 | @ | .15 |

### VULCANIZING INGREDIENTS

| | | | | |
|---|---|---|---|---|
| Sulfur Chloride (drums) | lb. | .03¼ | @ | .03½ |
| Sulfur flour, | | | | |
| **Refined, 100% pure (bags)** | cwt. | 2.40 | @ | 2.75 |
| **Commercial (bags)** | cwt. | 1.75 | @ | 2.10 |

TIRES & TUBES
CRUDE RUBBER

# STATISTICAL SECTION

AUTOMOBILES
GASOLINE

DOWNWARD revision of estimates of 1929 rubber consumption in the United States may be necessary as a result of the decided drop in factory production schedules during the two final months of the year. November consumption, according to the Rubber Manufacturers Association, was only 27,659 tons. Combining the monthly figures for October and November with the three quarterly reports of the association, gives a total of 444,062 tons for the first eleven months of 1929. Should December consumption continue at the declining rate shown in November, the year's total absorption in this country will not be much above 470,000 tons.

Automobile production during November dropped to 217,441 units, a figure which is in striking contrast to the record April output of 621,347 units in this country. December production is estimated to be even lower, particularly in view of the marked decline in rim output to only 596,989 units in November as compared with 1,647,350 in October and with 2,729,899 in the peak month of April.

London and Liverpool stocks, which were figured at 70,290 tons on November 30, had increased by December 14 to 73,404 tons, the heaviest amount since January, 1923, with the exception of a short period in the middle of October, 1927.

Figures covering imports and exports from the leading producing and consuming countries have been added to the appropriate tables in this section.

**PLAN OF THE SECTION**

**The statistics included in this section have been chosen for their constant importance to the rubber industry. The tables are reprinted in the same relative position in every issue, each table being kept current by the addition of new figures as soon as they become available.**

**Table of Contents**

**United States Rubber Imports and Exports**
Rubber Consumption in the United States
Rubber Invoiced to the United States
Daily Rubber Prices in New York
Monthly and Annual Rubber Prices
London Official Rubber Prices
Daily Cotton Prices in New York
Stocks of Crude Rubber in the U. S.
Rubber in London and Liverpool
Rubber in Singapore and Penang
United States Tire and Tube Statistics
Automobile Production—U. S. and Canada
Rims Inspected and Passed in the U. S.
United States Consumption of Gasoline
Rubber Exports from Producing Countries
Rubber Imports into Consuming Countries
Production of Misc. Rubber Goods
Imports of Guayule and Related Gums
Consumption, etc., of Reclaimed Rubber

## U. S. Imports and Exports of Crude Rubber

| | Gross Imports | | | Re-exports | | | Net Imports |
|---|---|---|---|---|---|---|---|
| YEARS | Long Tons | Total Declared Value | Average Declared Value per pound Cents | Long Tons | Total Declared Value | Average Declared Value per pound Cents | Long Tons |
| 1921 | 185,394 | 75,772,677 | 17.76 | 5,716 | 2,414,924 | 18.86 | 179,678 |
| 1922 | 301,076 | 101,843,188 | 15.10 | 4,809 | 1,921,828 | 17.84 | 296,267 |
| 1923 | 309,144 | 185,060,304 | 26.72 | 8,772 | 5,672,319 | 28.87 | 300,372 |
| 1924 | 328,056 | 174,231,331 | 23.71 | 10,309 | 6,057,637 | 26.23 | 317,747 |
| 1925 | 396,642 | 429,705,014 | 48.36 | 14,827 | 19,847,753 | 59.76 | 381,815 |
| 1926 | 413,338 | 505,817,807 | 54.63 | 17,671 | 22,470,583 | 56.77 | 395,667 |
| 1927 | 426,258 | 339,874,774 | 35.60 | 27,775 | 24,795,488 | 39.76 | 398,483 |
| **1928** | **439,731** | **244,854,973** | **25.03** | **32,159** | **18,128,361** | **25.17** | **407,572** |
| 1927: | | | | | | | |
| Jan. | 43,340 | 36,753,719 | 37.86 | 1,525 | 1,444,734 | 42.28 | 41,815 |
| Feb. | 28,337 | 23,110,257 | 36.41 | 2,451 | 2,277,297 | 41.47 | 25,886 |
| Mar. | 35,515 | 28,693,016 | 36.07 | 2,763 | 3,249,665 | 52.50 | 32,752 |
| Apr. | 46,202 | 37,321,505 | 36.06 | 1,575 | 1,428,425 | 40.48 | 44,627 |
| May | 36,518 | 30,984,377 | 37.88 | 2,782 | 2,501,562 | 40.14 | 33,736 |
| June | 33,045 | 27,850,014 | 37.62 | 1,775 | 1,550,592 | 39.00 | 31,270 |
| July | 37,677 | 31,678,259 | 37.53 | 1,958 | 1,560,853 | 35.59 | 35,719 |
| Aug. | 32,810 | 26,396,931 | 35.92 | 1,809 | 1,382,768 | 34.12 | 31,001 |
| Sept. | 33,301 | 25,314,412 | 33.94 | 3,500 | 3,036,929 | 38.74 | 29,801 |
| Oct. | 30,184 | 22,163,282 | 32.78 | 2,513 | 2,042,713 | 36.29 | 27,67[illegible] |
| Nov. | 28,592 | 27,395,428 | 31.69 | 2,469 | 2,014,196 | 36.43 | 36,123 |
| Dec. | 30,737 | 22,213,574 | 32.26 | 2,655 | 2,245,754 | 37.77 | 28,082 |
| 1928: | | | | | | | |
| Jan. | 39,107 | 30,278,444 | 34.56 | 1,988 | 1,734,990 | 38.95 | 37,119 |
| Feb. | 33,663 | 27,763,655 | 36.82 | 2,738 | 2,229,589 | 36.35 | 30,925 |
| Mar. | 40,611 | 32,103,042 | 35.29 | 3,718 | 2,587,435 | 31.07 | 36,893 |
| Apr. | 37,935 | 27,287,266 | 32.11 | 2,272 | 1,415,024 | 27.80 | 35,663 |
| May | 31,059 | 19,058,672 | 27.39 | 2,399 | 1,386,807 | 25.80 | 28,660 |
| June | 27,765 | 14,121,219 | 22.71 | 2,621 | 1,400,697 | 23.86 | 25,144 |
| July | 31,258 | 14,144,765 | 20.20 | 3,087 | 1,451,446 | 20.99 | 28,171 |
| Aug. | 31,204 | 12,860,150 | 18.39 | 2,377 | 1,084,646 | 20.37 | 28,827 |
| Sept. | 39,835 | 16,512,019 | 18.50 | 3,038 | 1,384,143 | 20.34 | 36,797 |
| Oct. | 44,058 | 18,200,332 | 18.44 | 2,405 | 1,085,407 | 20.15 | 41,653 |
| Nov. | 36,519 | 14,878,441 | 18.19 | 2,788 | 1,207,089 | 18.52 | 33,731 |
| Dec. | 43,511 | 17,580,966 | 18.04 | 2,738 | 1,165,743 | 19.00 | 40,773 |
| 1929: | | | | | | | |
| Jan. | 57,564 | 22,872,943 | 17.74 | 3,663 | 1,773,401 | 21.61 | 53,901 |
| Feb. | 64,265 | 24,760,111 | 17.20 | 2,955 | 1,374,783 | 20.77 | 61,310 |
| Mar. | 50,604 | 20,380,905 | 17.98 | 4,218 | 2,094,037 | 22.16 | 46,386 |
| Apr. | 55,725 | 25,542,726 | 20.46 | 3,293 | 1,624,237 | 22.02 | 52,432 |
| May | 51,161 | 24,355,511 | 21.25 | 2,386 | 1,349,690 | 21.24 | 48,325 |
| June | 41,663 | 18,799,307 | 20.14 | 3,152 | 1,470,746 | 20.83 | 38,511 |
| July | 43,944 | 19,342,147 | 19.65 | 3,424 | 1,590,411 | 20.73 | 40,520 |
| Aug. | 37,222 | 16,530,090 | 19.83 | 2,644 | 1,232,217 | 20.80 | 34,578 |
| Sept. | 34,472 | 15,214,485 | 19.70 | 2,011 | 861,068 | 19.11 | 32,461 |
| Oct. | 38,163 | 16,192,261 | 18.94 | 2,614 | 1,190,510 | 20.33 | 35,549 |
| Nov. | | | | | | | |
| Dec. | | | | | | | |

## U. S. Consumption of Crude Rubber

*(Rubber Manufacturers' Association statistics raised to 100 per cent—All figures in long tons)*

**Figures on Monthly Basis**

| | 1922 | 1923 | 1924 | 1925 | 1926 | 1927 | 1928 | 1929 |
|---|---|---|---|---|---|---|---|---|
| Jan. | 16,938 | 30,106 | 29,058 | 29,638 | 32,196 | 31,518 | 34,403 | 43,002 |
| Feb. | 14,767 | 30,149 | 25,736 | 19,761 | 31,136 | 30,137 | 33,702 | 41,594 |
| Mar. | 21,408 | 36,629 | 28,385 | 33,498 | 32,936 | 36,141 | 35,688 | 44,736 |
| Apr. | 19,294 | 29,085 | 27,129 | 34,139 | 32,696 | 35,871 | 33,772 | 47,521 |
| May | 23,246 | 36,155 | 25,845 | 35,322 | 29,364 | 34,592 | 37,333 | 49,233 |
| June | 31,713 | 24,272 | 22,753 | 35,822 | 28,598 | 33,801 | 37,676 | 43,227 |
| July | 24,522 | 17,685 | 23,396 | 36,053 | 27,577 | 29,219 | 37,407 | 41,526 |
| Aug. | 29,631 | 20,359 | 28,982 | 35,909 | 34,533 | 33,460 | 42,927 | 38,274 |
| Sept. | 24,410 | 17,594 | 31,497 | 31,691 | 32,904 | 27,214 | 39,882 | 34,707 |
| Oct. | 26,881 | 21,321 | 31,520 | 29,047 | 29,886 | 26,790 | 40,857 | 34,800 |
| Nov. | 24,950 | 20,437 | 27,289 | 28,853 | 28,080 | 26,792 | 37,461 | 27,659 |
| Dec. | 25,070 | 31,902 | 27,199 | 28,748 | 26,293 | 25,492 | 31,232 | |
| Totals | 282,560 | 305,694 | 328,769 | 388,481 | 366,149 | 371,027 | 441,340 | |

**Figures on Quarterly Basis**

| Quarter | 1922 | 1923 | 1924 | 1925 | 1926 | 1927 | 1928 | 1929 |
|---|---|---|---|---|---|---|---|---|
| Jan./Mar. | | 96,776 | 87,609 | 95,263 | 94,301 | 99,216 | 103,558 | 128,565 |
| Apr./June | 127,360 | 89,493 | 75,674 | 104,099 | 87,109 | 103,342 | 103,500 | 139,992 |
| July/Sept. | | 55,621 | 83,813 | 99,493 | 93,793 | 89,210 | 117,573 | 113,746 |
| Oct./Dec. | 155,067 | 63,617 | 92,656 | 85,789 | 83,212 | 80,860 | 117,597 | |
| Totals | 282,427 | 305,507 | 339,752 | 384,644 | 358,415 | 372,528 | 442,227 | 381,603 |

Note—The Rubber Association estimates its monthly rubber consumption figures to be 90 per cent complete. Up until 1925 the quarterly figures were likewise estimated to be 90 per cent complete; beginning with 1925 an estimate of 92 per cent completeness has been used. These estimates have been used in raising the figures in this table to 100 per cent. The quarterly figures are generally regarded as the most authentic; the monthly figures may be accepted as preliminary.

## Rubber Invoiced to the U. S.

*(Reported by American Consuls—Quantities in Long Tons)*

| During the Week Ended | From Br. Malaya | From Ceylon | From Dutch East Indies | From London & Liverpool | Total |
|---|---|---|---|---|---|
| Sept. 21 | 7,514 | 533 | 1,549 | 15 | 9,611 |
| Sept. 28 | 6,861 | 1,975 | 1,456 | 140 | 10,432 |
| Oct. 5 | 7,913 | 1,748 | 1,632 | 52 | 11,345 |
| Oct. 12 | 6,639 | 1,216 | 1,462 | 65 | 9,382 |
| Oct. 19 | 6,991 | 590 | 1,819 | 383 | 9,783 |
| Oct. 26 | 6,194 | 1,406 | 1,558 | 242 | 9,400 |
| Nov. 2 | 7,776 | 960 | 2,012 | 51 | 10,799 |
| Nov. 9 | 7,103 | 648 | 1,470 | 106 | 9,327 |
| Nov. 16 | 5,584 | 571 | 1,960 | 52 | 8,167 |
| Nov. 23 | 6,109 | 919 | 1,711 | 78 | 8,817 |
| Nov. 30 | 6,672 | 1,404 | 2,205 | 9 | 10,290 |
| Dec. 7 | 8,543 | 1,920 | 2,115 | 16 | 12,594 |
| Dec. 14 | 7,428 | 1,299 | 1,655 | 6 | 10,388 |

## Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | Ave. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1927 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| May | | 40½ | 40¾ | 40½ | 41 | 41 | 40¾ | | 40¾ | 40¾ | 40¾ | 40¾ | 40¾ | 40¾ | | 40⅞ | 40⅞ | 40⅞ | 40⅞ | 40¾ | 40¾ | | 40¾ | 41 | 40¾ | 40¾ | | 40¾ | | | 40¾ | 40¾ |
| June | | 40¾ | 40¾ | | 41 | 41 | 39⅝ | | 39⅝ | 39⅝ | 39⅝ | 39⅝ | 39⅝ | 39⅝ | | 39⅝ | 39⅝ | 39⅝ | 39⅝ | 39⅝ | 39⅝ | | 39⅝ | 39⅝ | 39⅝ | 39⅝ | | 39⅝ | | | 39⅝ | 39⅝ |
| July | | 35½ | | 35½ | 35½ | 35½ | 34⅝ | | 34⅝ | 34⅝ | 34⅝ | 34⅝ | 34⅝ | 34⅝ | | 34⅝ | 34⅝ | 34⅝ | 34⅝ | 34⅝ | 34⅝ | | 34⅝ | 34⅝ | 34⅝ | 34⅝ | | 34⅝ | | | 34⅝ | 34⅝ |
| August | | 35½ | | 35½ | 35½ | 35½ | 35½ | | 35½ | 35½ | 35½ | 35½ | 35½ | 35½ | | 35½ | 35½ | 35½ | 35½ | 35½ | 35½ | | 35½ | 35½ | 35½ | 35½ | | 35½ | | | 35½ | 35½ |
| Sept. | | 34 | | 35% | 35% | 35% | 35% | | 35% | 35% | 35% | 35% | 35% | 35% | | 35% | 35% | 35% | 35% | 35% | 35% | | 35% | 35% | 35% | 35% | | 35% | | | 35% | 35% |
| Oct. | | 33¾ | | 33½ | 33½ | 33½ | 33½ | | 33½ | 33½ | 34⅛ | 33½ | 34⅛ | 34¼ | | 34¼ | 34⅛ | 34½ | 34½ | 33½ | 34½ | | 34½ | 34½ | 34½ | 34½ | | 34¼ | | | 35¼ | 34⅛ |
| Nov. | | 35 | | 35¾ | 35¾ | 35¾ | 35¾ | | 36¼ | 36¼ | 36¼ | 36¼ | 36¼ | 36½ | | 37⅜ | 36¾ | 37⅜ | 37⅜ | 37⅜ | 38¼ | | 38½ | 38½ | 38½ | 38½ | | 41¾ | | | 41½ | 37⅝ |
| Dec. | | 40½ | | 40¾ | | | 40½ | | 40½ | 40½ | | 40½ | 40½ | 40 | | 39¾ | 40¾ | | 40% | 40% | 40½ | | 40¾ | 40¾ | 40¾ | 40½ | | 41½ | | | 40 | 40% |
| 1928 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| January | | | | 41¼ | 41¼ | 41 | 41 | | 41 | 41 | 40¾ | 40% | 40½ | 40½ | | 40¼ | 40¼ | 40¼ | 40¼ | 40¼ | 40¼ | | 40¼ | 40¼ | 40¼ | 40¼ | | 39¾ | | | 39 | 40¼ |
| February | | 37½ | | 37¾ | 37¾ | 37¾ | 36% | | 36% | 36% | 36% | 36% | 36% | 36% | | 36% | 36% | 36% | 36% | 36% | 36% | | 36% | 36% | 36% | 36% | | 36% | | | 36% | 36% |
| March | | 29 | | 28½ | 28½ | 28½ | 28¾ | | 28¾ | 28¾ | 28¾ | 28¾ | 28¾ | 28¾ | | 28¾ | 28¾ | 28¾ | 28¾ | 28¾ | 28¾ | | 28¾ | 28¾ | 28¾ | 28¾ | | 28¾ | | | 28¾ | 28¾ |
| April | | 27¼ | | 27½ | 27½ | 27½ | 27½ | | 27½ | 27½ | 27½ | 27½ | 27½ | 27½ | | 27½ | 27½ | 27½ | 27½ | 27½ | 27½ | | 27½ | 27½ | 27½ | 27½ | | 27½ | | | 27½ | 27½ |
| May | | 17½ | | 18¼ | 19¼ | 19¼ | 19¼ | | 19¼ | 19¼ | 19¼ | 19¼ | 19¼ | 19¼ | | 19¼ | 19¼ | 19¼ | 19¼ | 19¼ | 19¼ | | 19¼ | 19¼ | 19¼ | 19¼ | | 19¼ | | | 19¼ | 19¼ |
| June | | 19¼ | | 19¾ | 19¾ | 19¾ | 19¾ | | 19¾ | 19¾ | 19¾ | 19¾ | 19¾ | 19¾ | | 19¾ | 19¾ | 19¾ | 19¾ | 19¾ | 19¾ | | 19¾ | 19¾ | 19¾ | 19¾ | | 19¾ | | | 19¾ | 19¾ |
| July | | 19½ | | 19½ | 19 | 19 | 19 | | 19 | 19 | 19 | 19 | 19 | 19 | | 19 | 19 | 19 | 19 | 19 | 19 | | 19 | 19 | 19 | 19 | | 19 | | | 19 | 19 |
| August | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| September | | 18% | | 19% | 19% | 19% | 19% | | 19% | 19% | 19% | 19% | 19% | 19% | | 19% | 19% | 19% | 19% | 19% | 19% | | 19% | 19% | 19% | 19% | | 19% | | | 19% | 19% |
| October | | 18% | | 18½ | 18½ | 18½ | 18½ | | 18½ | 18½ | 18½ | 18½ | 18½ | 18½ | | 18½ | 18½ | 18½ | 18½ | 18½ | 18½ | | 18½ | 18½ | 18½ | 18½ | | 18½ | | | 18½ | 18½ |
| November | | 18% | | 18% | 18% | 18% | 18% | | 18% | 18% | 18% | 18% | 18% | 18% | | 18% | 18% | 18% | 18% | 18% | 18% | | 18% | 18% | 18% | 18% | | 18% | | | 18% | 18% |
| December | | 17¾ | | 17¾ | 17¾ | 17¾ | 17¾ | | 18 | 18 | 18 | 18 | 18 | 18 | | 18 | 18 | 18 | 18 | 18 | 18 | | 18 | 18 | 18 | 18 | | 18 | | | 18 | 18 |
| 1929 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| January | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| February | | 22¾ | | 18½ | 18½ | 18½ | 18½ | | 18½ | 18% | 18% | 18% | 18% | 18% | | 18% | 18% | 18% | 18% | 18% | 18% | | 18% | 18% | 18% | 18% | | 18% | | | 18% | 18% |
| March | | 22 | | 21% | 22¼ | 22¼ | 22¼ | | 22¼ | 22¼ | 22¼ | 22¼ | 22¼ | 22¼ | | 22¼ | 22¼ | 22¼ | 22¼ | 22¼ | 22¼ | | 22¼ | 22¼ | 22¼ | 22¼ | | 22¼ | | | 22¼ | 22¼ |
| April | | 26 | | 26 | 26 | 26 | 26 | | 26 | 25½ | 25½ | 25½ | 25½ | 25½ | | 25½ | 25½ | 25½ | 25½ | 25½ | 25½ | | 25½ | 25½ | 25½ | 25½ | | 25½ | | | 25½ | 25½ |
| May | | 23 | | 22¼ | 22¼ | 22½ | 22½ | | 22½ | 22½ | 22½ | 22½ | 22½ | 22½ | | 22½ | 22½ | 22½ | 22½ | 22½ | 22½ | | 22½ | 22½ | 22½ | 22½ | | 22½ | | | 22½ | 22½ |
| June | | 19% | | 19% | 19% | 20% | 20% | | 21 | 21 | 21 | 21 | 21 | 21 | | 21 | 21 | 21 | 21 | 21 | 21 | | 21 | 21 | 21 | 21 | | 21 | | | 21½ | 21½ |
| July | | 21½ | | 21% | 21¼ | 21¼ | 21¼ | | 21¼ | 21¼ | 21¼ | 21¼ | 21¼ | 21¼ | | 21¼ | 21¼ | 21¼ | 21¼ | 21¼ | 21¼ | | 21¼ | 21¼ | 21¼ | 21¼ | | 21¼ | | | 21¼ | 21¼ |
| Aug. | | 20% | | 21 | 21 | 21 | 21 | | 21 | 20% | 20% | 20% | 20% | 20% | | 20% | 20% | 20% | 20% | 20% | 20% | | 20% | 20% | 20% | 20% | | 20% | | | 20% | 20% |
| Sept. | | 21% | | 21 | 20¼ | 20¼ | 20¼ | | 20¼ | 20% | 20% | 20% | 20% | 20% | | 20% | 20% | 20% | 20% | 20% | 20% | | 20% | 20% | 20% | 20% | | 20% | | | 20% | 20% |
| Oct. | | 19% | | 19½ | 17½ | 17½ | 17½ | | 17½ | 16¾ | 16¾ | 16¾ | 16¾ | 16¾ | | 16¾ | 16¾ | 16¾ | 16¾ | 16¾ | 16¾ | | 16¾ | 16¾ | 16¾ | 16¾ | | 16¾ | | | 16¾ | 16¾ |
| Nov. | | 17¾ | | 17¾ | 16¼ | 16¼ | 16¼ | | 16¼ | 16½ | 16½ | 16½ | 16½ | 16½ | | 16½ | 16½ | 16½ | 16½ | 16½ | 16½ | | 16½ | 16½ | 16½ | 16½ | | 16½ | | | 16½ | 16½ |
| Dec. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

## Average Spot Closing Prices—Ribbed Smoked Sheets

*(New York Market)*

### Average Price per Pound for Years 1910-1921

| Year | Cents | Year | Cents | Year | Cents |
|---|---|---|---|---|---|
| 1910 | 206.60 | 1914 | 65.33 | 1918 | 60.15 |
| 1911 | 141.30 | 1915 | 65.85 | 1919 | 48.70 |
| 1912 | 121.60 | 1916 | 72.50 | 1920 | 36.30 |
| 1913 | 82.04 | 1917 | 72.28 | 1921 | 16.36 |

### Average Monthly Price per Pound Since 1922

| Months | 1922 Cents | 1923 Cents | 1924 Cents | 1925 Cents | 1926 Cents | 1927 Cents | 1928 Cents | 1929 Cents |
|---|---|---|---|---|---|---|---|---|
| Jan. | 18.82 | 32.73 | 25.86 | 36.71 | 79.50 | 38.75 | 40.25 | 20.14 |
| Feb. | 16.12 | 35.14 | 25.29 | 36.01 | 62.25 | 38.25 | 32.75 | 23.97 |
| Mar. | 14.53 | 34.21 | 22.83 | 41.00 | 59.00 | 41.04 | 26.82 | 24.55 |
| Apr. | 15.99 | 32.48 | 22.51 | 43.64 | 51.25 | 40.86 | 18.97 | 21.18 |
| May | 15.25 | 27.39 | 18.89 | 58.47 | 47.75 | 40.76 | 18.99 | 21.46 |
| June | 15.11 | 26.88 | 18.81 | 77.26 | 42.50 | 37.25 | 19.59 | 20.64 |
| July | 14.67 | 26.10 | 22.16 | 103.16 | 41.03 | 34.87 | 19.40 | 21.30 |
| Aug. | 13.93 | 28.84 | 26.17 | 82.99 | 38.50 | 35.12 | 19.46 | 20.59 |
| Sept. | 14.44 | 28.95 | 27.56 | 88.88 | 41.00 | 33.67 | 18.47 | 20.37 |
| Oct. | 19.78 | 26.93 | 31.13 | 98.01 | 42.50 | 34.32 | 18.83 | 19.67 |
| Nov. | 23.88 | 27.14 | 34.33 | 104.80 | 38.50 | 37.58 | 18.26 | 16.62 |
| Dec. | 27.42 | 26.60 | 37.88 | 98.51 | 38.25 | 40.63 | 17.97 | —— |
| Average for Year | 17.50 | 29.45 | 26.20 | 72.46 | 48.50 | 37.72 | 22.48 | —— |

## London Closing Prices of Ribbed Smoked Sheet

*(In Pence Per Pound)*

| Day | Sept. | Oct. | Nov. | Dec. | Day | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | — | 9¾ | 8⅞ | — | 17 | 10¼ | 9¾ | — | 8 |
| 2 | 10¼ | 9½ | 8⅝ | 8 | 18 | 10¼ | 9¾ | 8⅛ | — |
| 3 | 10¼ | 9⅝ | — | 7⅞ | 19 | 10¼ | 9¾ | 8 | — |
| 4 | 10¼ | 9½ | 8½ | 8 | 20 | 10¼ | — | 8⅛ | — |
| 5 | 10¼ | 9¾ | 8½ | 8 | 21 | 10¼ | 9¾ | 8⅛ | — |
| 6 | 10⅛ | — | 8⅝ | 8 | 22 | — | 9⅝ | 8⅛ | — |
| 7 | 10⅛ | 9¾ | 8¼ | 8 | 23 | 10¼ | 9⅝ | 8⅛ | — |
| 8 | — | 10 | 8¼ | — | 24 | 10¼ | 9⅜ | — | — |
| 9 | 10⅛ | 10 | 8⅛ | 8 | 25 | 10⅛ | 9⅛ | 8⅛ | — |
| 10 | 10¼ | 9⅞ | — | 8 | 26 | 10 | 9⅛ | 8¼ | — |
| 11 | 10¼ | 9⅞ | 8⅛ | 8⅛ | 27 | 10 | — | 8⅛ | — |
| 12 | 10¼ | 10 | 7⅞ | 8 | 28 | 9¾ | 9⅛ | 8 | — |
| 13 | 10¼ | — | 7⅞ | 8 | 29 | — | 9 | 8 | — |
| 14 | 10¼ | 10 | 8⅝ | 8 | 30 | 9¾ | 9⅛ | 8 | — |
| 15 | — | 10 | 8⅜ | — | 31 | — | 9⅛ | — | — |
| 16 | 10¼ | 9⅞ | 8⅛ | 8 | | | | | |

### Average Monthly Price Per Pound

| Month | 1927 Pence | 1928 Pence | 1929 Pence | Month | 1927 Pence | 1928 Pence | 1929 Pence |
|---|---|---|---|---|---|---|---|
| Jan. | 19.410 | 19.310 | 9.942 | Aug. | 17.202 | 9.300 | 10.505 |
| Feb. | 19.021 | 15.713 | 11.875 | Sept. | 16.293 | 8.530 | 10.160 |
| Mar. | 20.125 | 12.736 | 12.135 | Oct. | 16.366 | 8.807 | 9.620 |
| Apr. | 19.897 | 8.864 | 10.490 | Nov. | 18.159 | 8.596 | 8.442 |
| May | 19.769 | 8.845 | 10.717 | Dec. | 19.690 | 8.570 | —— |
| June | 17.880 | 9.293 | 10.580 | Average for Year | 18.375 | 10.656 | —— |
| July | 16.770 | 9.312 | 11.065 | | | | |

## Spot Closing Cotton Prices

*(Middling Upland Grade—New York Market)*

### Recent Daily Price Per Pound

| Day of Month | Nov. | Dec. | Day of Month | Nov. | Dec. | Day of Month | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|
| 1 | 18.10 | —— | 11 | 17.30 | 17.30 | 21 | 17.75 | —— |
| 2 | 18.05 | 17.30 | 12 | 17.00 | 17.25 | 22 | 17.55 | —— |
| 3 | —— | 17.55 | 13 | 17.20 | 17.25 | 23 | 17.60 | —— |
| 4 | 17.90 | 17.55 | 14 | 17.30 | 17.20 | 24 | —— | —— |
| 5 | —— | 17.35 | 15 | 17.50 | —— | 25 | 17.55 | —— |
| 6 | 17.30 | 17.50 | 16 | 17.75 | 17.00 | 26 | 17.40 | —— |
| 7 | 17.35 | 17.40 | 17 | —— | 17.05 | 27 | 17.30 | —— |
| 8 | 17.60 | —— | 18 | 17.50 | —— | 28 | —— | —— |
| 9 | 17.50 | 17.20 | 19 | 17.75 | —— | 29 | 17.40 | —— |
| 10 | —— | 17.35 | 20 | 17.80 | —— | 30 | 17.35 | —— |
| | | | | | | 31 | —— | —— |

### Average Monthly Price Per Pound

| Month | 1927 Cents | 1928 Cents | 1929 Cents | Month | 1927 Cents | 1928 Cents | 1929 Cents |
|---|---|---|---|---|---|---|---|
| Jan. | 13.42 | 19.12 | 20.22 | Aug. | 20.04 | 19.28 | 18.62 |
| Feb. | 14.10 | 18.40 | 20.21 | Sept. | 21.95 | 18.67 | 18.83 |
| Mar. | 14.32 | 19.38 | 20.19 | Oct. | 20.22 | 19.62 | 18.46 |
| Apr. | 14.75 | 20.63 | 20.29 | Nov. | 20.22 | 19.84 | 17.53 |
| May | 16.07 | 21.58 | 19.41 | Dec. | 19.58 | 20.22 | —— |
| June | 16.85 | 21.50 | 18.74 | Average for Year | 17.49 | 19.97 | —— |
| July | 18.00 | 21.36 | 18.62 | | | | |

# Stock of Crude Rubber in the U. S.

*(All Quantities in Long Tons)*

| At | ON HAND | | | AFLOAT | | | ON HAND AND AFLOAT | | |
|---|---|---|---|---|---|---|---|---|---|
| End of | 1927 | 1928 | 1929 | 1927 | 1928 | 1929 | 1927 | 1928 | 1929 |
| Jan. | 76,172 | 110,244 | 76,342 | 45,312 | 41,256 | 78,596 | 121,484 | 151,500 | 154,938 |
| Feb. | 91,186 | 108,955 | 90,058 | 42,166 | 43,316 | 63,825 | 133,352 | 152,271 | 153,883 |
| March | 85,740 | 114,061 | 100,536 | 49,600 | 39,324 | 56,476 | 135,340 | 153,385 | 157,012 |
| April | 92,757 | 113,083 | 107,659 | 38,983 | 33,986 | 55,409 | 131,720 | 147,069 | 163,068 |
| May | 94,568 | 105,356 | 97,192 | 44,181 | 34,374 | 55,404 | 138,744 | 139,730 | 152,596 |
| June | 89,250 | 90,198 | 92,061 | 47,233 | 40,001 | 46,035 | 136,483 | 130,119 | 138,096 |
| July | 98,469 | 83,242 | 92,535 | 40,687 | 42,304 | 38,858 | 139,056 | 125,546 | 134,393 |
| Aug. | 96,148 | 68,994 | 90,769 | 40,937 | 51,875 | 41,618 | 137,085 | 120,869 | 132,387 |
| Sept. | 97,829 | 68,851 | 84,362 | 37,966 | 48,566 | 49,480 | 135,793 | 117,417 | 133,842 |
| Oct. | 97,452 | 66,421 | 88,483 | 42,804 | 41,571 | 62,294 | 140,256 | 107,992 | 150,777 |
| Nov. | 101,034 | 61,956 | 92,219 | 37,076 | 68,119 | 62,358 | 138,110 | 130,075 | 154,577 |
| Dec. | 100,130 | 66,166 | | 47,938 | 68,764 | | 148,068 | 134,930 | |

(Rubber Manufacturers' Association figures raised to 100%.)

# Stock of Crude Rubber in London

**(No. of Tons in Wharves and Warehouses, including Latex)**

| At end of | 1927 | 1928 | 1929 | At end of | 1927 | 1928 | 1929 |
|---|---|---|---|---|---|---|---|
| Jan. | 54,994 | 66,524 | 25,191 | July | 63,717 | 35,429 | 30,080 |
| Feb. | 58,826 | 62,964 | 25,554 | Aug. | 64,491 | 32,084 | 35,605 |
| Mar. | 63,055 | 58,272 | 28,214 | Sept. | 68,236 | 31,440 | |
| Apr. | 66,897 | 53,425 | 31,368 | Oct. | 69,569 | 24,207 | |
| May | 67,169 | 44,628 | 31,290 | Nov. | 67,050 | 17,775 | |
| June | 63,902 | 38,756 | 31,025 | Dec. | 63,793 | 19,815 | |

## At End of Recent Weeks

### Stocks in London

| | First Saturday | Second Saturday | Third Saturday | Fourth Saturday | Fifth Saturday |
|---|---|---|---|---|---|
| 1929 | | | | | |
| January | 21,953 | 23,016 | 23,547 | 24,423 | ——— |
| February | 25,389 | 25,413 | 24,757 | 25,005 | ——— |
| March | 25,441 | 25,920 | 26,442 | 27,656 | 28,077 |
| April | 28,934 | 30,446 | 30,503 | 31,213 | |
| May | 31,580 | 31,127 | 30,955 | 30,893 | ——— |
| June | 31,539 | 31,635 | 31,127 | 30,617 | 30,982 |
| July | 29,996 | 30,661 | 30,790 | 30,167 | |
| August | 30,937 | 31,444 | 33,573 | 34,651 | 35,605 |
| September | 36,620 | 37,901 | 40,151 | 42,077 | |
| October | 43,478 | 44,339 | 45,711 | 46,819 | |
| November | 48,092 | 49,302 | 50,068 | 51,012 | 52,538 |
| December | 53,431 | 55,141 | | | |

### Stocks in Liverpool

| | | | | | |
|---|---|---|---|---|---|
| 1929 | | | | | |
| January | 2,953 | 3,520 | 3,505 | 3,824 | ——— |
| February | 3,860 | 4,106 | 4,086 | 4,151 | ——— |
| March | 4,255 | 4,136 | 4,100 | 4,333 | 4,433 |
| April | 4,442 | 4,591 | 4,521 | 4,779 | ——— |
| May | 4,614 | 4,384 | 4,216 | 4,665 | ——— |
| June | 4,642 | 4,750 | 4,733 | 4,515 | 4,628 |
| July | 4,393 | 4,547 | 4,757 | 4,739 | ——— |
| August | 4,662 | 4,481 | 5,993 | 7,285 | 7,560 |
| September | 8,351 | 8,660 | 9,780 | 10,161 | ——— |
| October | 10,795 | 11,571 | 11,788 | 12,665 | ——— |
| November | 14,272 | 16,158 | 17,543 | 17,479 | 17,752 |
| December | 17,922 | 18,263 | | | |

# Rubber in Singapore and Penang

*(Stocks held by Dealers—Quantities in Long Tons)*

| End of | 1927 | 1928 | 1929 | End of | 1927 | 1928 | 1929 |
|---|---|---|---|---|---|---|---|
| Jan. | 25,440 | 25,868 | 29,617 | July | 22,558 | 18,663 | 33,859 |
| Feb. | 26,766 | 22,867 | 32,373 | Aug. | 25,764 | 18,971 | 30,834 |
| Mar. | 27,844 | 20,538 | 29,437 | Sept. | 25,178 | 14,898 | 32,138 |
| Apr. | 24,543 | 16,946 | 26,474 | Oct. | 25,790 | 12,149 | 33,770 |
| May | 25,133 | 17,437 | 30,764 | Nov. | 28,369 | 29,188 | ——— |
| June | 21,898 | 18,207 | 30,403 | Dec. | 25,798 | 32,895 | ——— |

# Rims Inspected and Passed in U. S.

*(Tire and Rim Association Reports)*

| | Total | Per Cent Balloons | | Total | Per Cent Balloons |
|---|---|---|---|---|---|
| 1923 | 23,140,620 | 0.6 | 1926 | 24,199,524 | 78.8 |
| 1924 | 21,868,311 | 19.7 | 1927 | 19,700,003 | 79.1 |
| 1925 | 26,001,664 | 66.8 | 1928 | 24,247,282 | 81.6 |
| 1929 | | | | | |
| January | 1,835,207 | 79.4 | July | 1,896,666 | 78.2 |
| February | 2,265,024 | 80.8 | August | 1,570,099 | 79.4 |
| March | 2,613,389 | 80.4 | September | 2,110,003 | 80.7 |
| April | 2,729,899 | 81.8 | October | 1,647,350 | 76.4 |
| May | 2,574,224 | 76.5 | November | 596,989 | 64.7 |
| June | 2,184,219 | 75.8 | December | | |

# U. S. Consumption of Gasoline

*(In Barrels of 42 Gallons)*

| MONTHS | 1928 | 1929 | MONTHS | 1928 | 1929 |
|---|---|---|---|---|---|
| January | 20,938,000 | 22,602,000 | July | 30,960,000 | 36,860,000 |
| February | 21,136,000 | 22,776,000 | August | 33,148,000 | 37,759,000 |
| March | 24,041,000 | 28,495,000 | September | 29,691,000 | 34,193,000 |
| April | 25,712,000 | 32,019,000 | October | 30,610,000 | 32,816,000 |
| May | 27,355,000 | 34,117,000 | November | 26,222,000 | |
| June | 29,022,000 | 33,163,000 | December | 26,644,000 | |

# U. S. Tire and Tube Statistics

*(All Figures Represent Thousands)*

## AUTOMOBILE CASINGS

### Figures for Recent Years

| | 1922 | 1923 | 1924 | 1925 | 1926 | 1927 | 1928 |
|---|---|---|---|---|---|---|---|
| Production | 40,932 | 45,259 | 51,633 | 60,845 | 61,237 | 64,439 | 77,944 |
| Shipments | 39,987 | 45,204 | 50,120 | 59,262 | 59,002 | 64,059 | 74,296 |
| Inventory[1] | 6,132 | 5,772 | 7,427 | 8,142 | 10,456 | 10,264 | 13,624 |

### Figures for Recent Months

| | PRODUCTION | | | SHIPMENTS | | | INVENTORY | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1927 | 1928 | 1929 | 1927 | 1928 | 1929 | 1927 | 1928 | 1929 |
| Jan. | 4,965 | 5,358 | 6,722 | 4,932 | 5,394 | 6,626 | 10,432 | 9,949 | 13,712 |
| Feb. | 5,095 | 6,363 | 6,912 | 4,458 | 5,031 | 5,282 | 11,075 | 11,721 | 15,495 |
| Mar. | 6,276 | 6,819 | 7,519 | 5,701 | 5,731 | 6,708 | 11,583 | 12,389 | 16,351 |
| Apr. | 6,299 | 6,178 | 7,884 | 5,701 | 5,812 | 7,294 | 12,122 | 12,71. | 16,929 |
| May | 6,151 | 6,759 | 8,145 | 5,657 | 6,457 | 7,184 | 12,462 | 13,024 | 17,849 |
| June | 6,202 | 6,692 | 7,304 | 6,253 | 7,117 | 7,254 | 12,462 | 12,162 | 17,957 |
| July | 5,087 | 6,498 | 6,475 | 5,973 | 7,895 | 7,855 | 11,326 | 11,157 | 15,830 |
| Aug. | 5,752 | 7,469 | 5,806 | 6,393 | 8,403 | 7,845 | 10,721 | 10,034 | 14,226 |
| Sept. | 4,822 | 6,802 | 4,758 | 5,717 | 7,145 | 5,998 | 9,722 | 9,765 | 12,875 |
| Oct. | 4,773 | 7,826 | | 4,799 | 5,717 | | 9,665 | 11,520 | |
| Nov. | 4,502 | 6,075 | | 4,306 | 4,998 | | 10,136 | 12,579 | |
| Dec. | 4,497 | 5,605 | | 4,165 | 4,591 | | 10,264 | 13,624 | |

## AUTOMOBILE INNER TUBES

### Figures for Recent Years

| | 1922 | 1923 | 1924 | 1925 | 1926 | 1927 | 1928 |
|---|---|---|---|---|---|---|---|
| Production | 50,850 | 60,116 | 70,706 | 82,614 | 76,618 | 70,823 | 80,180 |
| Shipments | 49,673 | 59,072 | 68,016 | 81,004 | 71,591 | 72,896 | 77,127 |
| Inventory[2] | 7,643 | 8,425 | 11,052 | 11,313 | 16,200 | 13,692 | 16,117 |

### Figures for Recent Months

| | PRODUCTION | | | SHIPMENTS | | | INVENTORY | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1927 | 1928 | 1929 | 1927 | 1928 | 1929 | 1927 | 1928 | 1929 |
| Jan. | 5,337 | 5,441 | 6,517 | 6,016 | 6,072 | 7,242 | 15,585 | 12,982 | 15,386 |
| Feb. | 5,658 | 6,895 | 6,769 | 5,120 | 5,431 | 5,278 | 16,075 | 14,650 | 16,999 |
| Mar. | 7,184 | 6,231 | 7,466 | 6,157 | 5,731 | 6,737 | 17,096 | 15,573 | 17,750 |
| Apr. | 7,373 | 6,661 | 7,634 | 6,359 | 5,702 | 7,164 | 17,801 | 16,638 | 18,134 |
| May | 6,737 | 7,168 | 7,660 | 6,140 | 6,300 | 7,038 | 18,389 | 17,702 | 18,928 |
| June | 6,306 | 6,953 | 6,978 | 6,832 | 7,136 | 6,950 | 17,858 | 17,159 | 18,741 |
| July | 5,284 | 6,674 | 6,178 | 7,070 | 8,729 | 8,118 | 16,004 | 14,974 | 16,382 |
| Aug. | 6,480 | 8,343 | 5,846 | 7,983 | 9,350 | 8,183 | 14,664 | 13,931 | 14,157 |
| Sept. | 5,651 | 7,103 | 5,536 | 6,758 | 7,154 | 6,250 | 13,511 | 13,543 | 13,424 |
| Oct. | 5,065 | 6,929 | | 5,024 | 5,662 | | 13,589 | 15,285 | |
| Nov. | 4,775 | 5,592 | | 4,723 | 5,002 | | 13,585 | 15,748 | |
| Dec. | 4,969 | 5,184 | | 4,712 | 4,858 | | 13,692 | 16,117 | |

(1) Rubber Manufacturers' Association figures, raised to 100%. The Association estimates its figures to be 75% representative or complete when issued and that basis has been accepted when preparing the statistics in this table.

(2) Held by manufacturers at end of period indicated.

# Automobile Production

| | United States | | | Canada | | | |
|---|---|---|---|---|---|---|---|
| | Total | Passenger Cars | Trucks | Total | Passenger Cars | Trucks | Grand Total |
| 1922 | 2,547,208 | 2,302,923 | 244,285 | 102,053 | 94,904 | 7,149 | 2,649,261 |
| 1923 | 4,020,255 | 3,631,728 | 388,527 | 146,438 | 129,228 | 17,210 | 4,166,693 |
| 1924 | 3,600,918 | 3,203,049 | 397,869 | 185,246 | 117,765 | 17,481 | 3,786,164 |
| 1925 | 4,265,704 | 3,760,459 | 505,245 | 161,389 | 139,311 | 22,078 | 4,427,093 |
| 1926 | 4,298,799 | 3,808,753 | 490,046 | 205,092 | 164,483 | 40,609 | 4,503,891 |
| 1927 | 3,393,887 | 2,938,868 | 453,019 | 179,426 | 146,870 | 32,556 | 3,573,313 |
| 1928 | | | | | | | |
| Jan. | 225,039 | 199,032 | 26,007 | 8,463 | 6,705 | 1,758 | 232,502 |
| Feb. | 323,368 | 290,830 | 32,358 | 12,504 | 10,315 | 2,189 | 335,872 |
| March | 412,825 | 371,408 | 41,417 | 9,724 | 7,478 | 2,246 | 422,549 |
| April | 409,948 | 364,877 | 45,071 | 24,240 | 20,546 | 3,694 | 434,188 |
| May | 425,990 | 375,798 | 50,192 | 33,942 | 29,764 | 4,178 | 459,932 |
| June | 396,967 | 356,439 | 40,528 | 28,399 | 25,341 | 3,058 | 425,366 |
| July | 390,445 | 237,933 | 52,512 | 25,226 | 20,122 | 5,104 | 415,671 |
| Aug. | 458,429 | 400,689 | 57,740 | 31,245 | 24,274 | 6,971 | 489,674 |
| Sept. | 413,722 | 358,872 | 54,850 | 21,193 | 16,572 | 4,621 | 434,915 |
| Oct. | 397,096 | 339,976 | 57,120 | 18,536 | 13,016 | 5,520 | 415,632 |
| Nov. | 256,936 | 217,256 | 39,680 | 11,769 | 8,154 | 3,615 | 268,705 |
| Dec. | 233,135 | 205,144 | 27,991 | 9,425 | 6,734 | 2,691 | 242,560 |
| TOTAL | 4,357,384 | 3,826,613 | 530,771 | 242,382 | 196,737 | 45,645 | 4,599,944 |
| 1929 | | | | | | | |
| Jan. | 402,154 | 350,617 | 51,537 | 21,501 | 17,164 | 4,337 | 423,655 |
| Feb. | 466,084 | 407,589 | 58,495 | 31,287 | 28,486 | 2,801 | 497,371 |
| March | 584,733 | 513,266 | 69,559 | 40,621 | 32,833 | 7,788 | 625,354 |
| April | 620,656 | 538,679 | 81,977 | 41,901 | 34,392 | 7,509 | 662,557 |
| May | 603,969 | 516,055 | 86,596 | 31,559 | 25,129 | 6,430 | 635,528 |
| June | 545,252 | 453,956 | 91,296 | 21,492 | 16,511 | 4,981 | 566,744 |
| July | 500,331 | 427,213 | 73,118 | 17,461 | 13,600 | 3,861 | 517,792 |
| Aug. | 499,629 | 444,711 | 54,918 | 14,214 | 11,037 | 3,177 | 513,843 |
| Sept. | 415,332 | 365,651 | 49,681 | 13,817 | 10,710 | 3,107 | 429,149 |
| Oct. | 380,011 | 321,195 | 58,816 | 14,523 | 8,975 | 5,548 | 394,534 |
| Nov. | 217,441 | 170,928 | 46,513 | | | | |
| Dec. | | | | | | | |

# Exports of Crude Rubber from Principal Producing Countries

*(Long Tons)*

| | BRITISH MALAYA[1] | | | | | | | DUTCH EAST INDIES[2] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gross Exports | Imports | Gross Exports Minus Imports | Ceylon[3] | India & Burma[3] | Sarawak[4] | British North Borneo[4] | Siam[4] | Java & Madura | Sumatra E. Coast | Other D.E.I. | Indo-China[5] | Amazon Valley | All Other[4] | World Total[7] |
| 1923 | 252,016 | 70,432 | 181,584 | 39,971 | 6,416 | 5,705 | 4,237 | 1,718 | 32,930 | 46,844 | 57,822 | 5,067 | 16,765 | 7,856 | 406,958 |
| 1924 | 259,706 | 108,524 | 151,182 | 39,997 | 7,697 | 6,699 | 4,621 | 2,962 | 42,446 | 54,497 | 80,347 | 6,688 | 23,155 | 9,065 | 429,366 |
| 1925 | 316,825 | 158,022 | 158,803 | 49,566 | 10,082 | 5,424 | 5,377 | 5,377 | 46,757 | 65,499 | 120,626 | 7,881 | 25,298 | 13,797 | 517,523 |
| 1926 | 391,328 | 151,243 | 240,085 | 58,962 | 9,874 | 9,155 | 6,079 | 4,027 | 52,186 | 71,413 | 121,231 | 8,203 | 24,298 | 16,017 | 621,530 |
| 1927 | 371,322 | 182,845 | 188,477 | 55,356 | 11,321 | 10,923 | 6,582 | 5,472 | 65,297 | 77,815 | 142,171 | 8,645 | 28,782 | 15,633 | 606,474 |
| 1928 | 409,430 | 149,787 | 259,643 | 57,267 | 10,790 | 10,087 | 6,698 | 4,813 | 58,848 | 82,511 | 121,770 | 9,548 | 21,129 | 10,690 | 653,794 |
| 1927: | | | | | | | | | | | | | | | |
| Nov. | 28,277 | 19,860 | 8,417 | 4,464 | 1,277 | 1,241 | 591 | 600 | 4,127 | 6,587 | 14,395 | 883 | 2,369 | 1,627 | 46,378 |
| Dec. | 32,185 | 17,865 | 14,320 | 4,130 | 1,395 | 946 | 592 | 664 | 5,768 | 7,878 | 13,438 | 1,191 | 3,340 | 1,444 | 55,101 |
| 1928: | | | | | | | | | | | | | | | |
| Jan. | 27,789 | 16,618 | 11,171 | 3,830 | 1,605 | 842 | 581 | 525 | 4,851 | 7,988 | 11,774 | 1,100 | 2,273 | 1,025 | 47,565 |
| Feb. | 28,848 | 12,911 | 15,937 | 4,947 | 1,081 | 667 | 581 | 536 | 4,052 | 6,757 | 8,630 | 787 | 1,612 | 1,276 | 46,860 |
| Mar. | 27,879 | 10,508 | 17,371 | 5,683 | 775 | 645 | 581 | 269 | 3,999 | 5,825 | 9,690 | 700 | 2,750 | 1,211 | 47,499 |
| Apr. | 20,139 | 9,335 | 10,804 | 3,233 | 789 | 630 | 494 | 258 | 3,993 | 5,040 | 5,499 | 736 | 1,014 | 1,323 | 33,810 |
| May | 26,483 | 10,350 | 16,133 | 3,091 | 654 | 842 | 494 | 241 | 4,943 | 5,355 | 10,347 | 717 | 2,602 | 1,135 | 45,994 |
| June | 22,994 | 16,168 | 6,826 | 3,107 | 963 | 926 | 494 | 451 | 5,419 | 5,863 | 13,655 | 725 | 1,399 | 960 | 40,788 |
| July | 30,481 | 13,383 | 17,098 | 5,129 | 1,043 | 905 | 593 | 366 | 5,602 | 7,566 | 11,594 | 698 | 1,264 | 873 | 52,731 |
| Aug. | 35,674 | 15,114 | 20,560 | 5,720 | 398 | 1,227 | 593 | 544 | 5,668 | 7,438 | 11,893 | 712 | 1,732 | 450 | 56,936 |
| Sept. | 29,769 | 11,239 | 18,530 | 4,675 | 457 | 938 | 594 | 447 | 4,956 | 6,536 | 9,863 | 969 | 1,614 | 494 | 50,073 |
| Oct. | 24,476 | 12,603 | 11,873 | 3,999 | 864 | 949 | 564 | 457 | 5,295 | 7,474 | 10,124 | 513 | 1,399 | 732 | 44,243 |
| Nov. | 68,135 | 10,436 | 57,699 | 8,005 | 1,048 | 772 | 564 | 425 | 4,950 | 7,902 | 7,805 | 943 | 1,790 | 623 | 92,526 |
| Dec. | 66,763 | 11,122 | 55,641 | 7,848 | 1,113 | 744 | 565 | 294 | 5,120 | 8,792 | 10,896 | 948 | 2,220 | 588 | 94,769 |
| 1929: | | | | | | | | | | | | | | | |
| Jan. | 52,546 | 13,415 | 39,131 | 8,301 | 1,664 | 873 | 600 | 461 | 5,640 | 8,067 | 11,076 | 850 | 2,134 | 642 | 79,439 |
| Feb. | 47,926 | 12,103 | 35,823 | 7,064 | 1,117 | 955 | 600 | 495 | 6,572 | 7,511 | 10,384 | 807 | 2,104 | 520 | 73,952 |
| Mar. | 49,448 | 14,553 | 34,895 | 6,583 | 1,413 | 758 | 601 | 499 | 5,515 | 6,620 | 10,629 | 658 | 2,332 | 786 | 71,289 |
| Apr. | 49,816 | 11,414 | 38,402 | 5,097 | 727 | 747 | 548 | 306 | 5,997 | 6,645 | 11,321 | 672 | 1,950 | 569 | 72,982 |
| May | 43,960 | 15,593 | 28,367 | 5,723 | 800 | 966 | 548 | 453 | 6,264 | 6,961 | 13,437 | 650 | 1,922 | 733 | 66,824 |
| June | 40,398 | 14,344 | 26,054 | 5,563 | 1,122 | 1,061 | 547 | 422 | 5,582 | 6,693 | 11,270 | 608 | 1,398 | 548 | 60,868 |
| July | 46,454 | 15,071 | 31,383 | 5,457 | 974 | 1,247 | 500* | 462 | 6,422 | 7,192 | 13,995 | 555 | 1,457 | 543 | 70,187* |
| Aug. | 50,441 | 15,469 | 34,972 | 6,079 | 685 | 993 | 500* | 481 | 4,644 | 7,298 | 10,782 | 545 | 1,563 | 499 | 68,991* |
| Sept. | 53,484 | 12,392 | 41,092 | 7,993 | 384 | 832 | 500* | 406 | 4,708 | 7,517 | 10,149 | 755 | 1,566 | 504 | 76,406* |
| Oct. | 47,987 | 12,516 | 35,421 | 8,411 | 812 | 1,047 | 500* | 485 | 4,697 | 8,295 | 10,512 | 893 | 1,606 | 445 | 73,124* |
| Nov. | 46,279 | 11,204 | 35,075 | 7,195 | | | | | | | | 771 | 1,442 | | |

(1) Malayan net exports cannot be taken as production, since imported rubber is largely wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 115 tons in 1923, 1,117 in 1924, 3,618 in 1925, 3,263 in 1926, 2,439 in 1927 and 1,437 in 1928. (2) Ceylon Chamber of Commerce statistics until 1926; rubber exported as latex is not included— such shipments were equivalent to 18 tons in 1923, 93 tons 1924, 6 tons 1925, 20 tons in 1926, about ½ ton in 1927, and 1 ton in 1928. (3) Official statistics. (4) Imports into Singapore and Penang. (5) Exports from "Other D.E.I." are chiefly wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 2,342 tons in 1923, 1,008 tons 1924, 2,239 tons 1925, 44 tons in 1926, 84 tons in 1927, and 1,459 tons in 1928. (6) Calculated from official import statistics of principal consuming countries, viz., United States, United Kingdom, France, Germany, Belgium and Netherlands. This figure includes guayule rubber. (7) This total includes the third column for British Malaya, "Gross Exports minus Imports," and all the figures shown for the other territories. *Figure is provisional; final figure will be shown immediately it becomes available.

# Net Imports of Crude Rubber into Principal Manufacturing Countries

*(Long Tons)*

| | United States[1] | United Kingdom | France (h) | Germany | Canada (ac) | Japan (da) | Italy | Russia (ce) | Australia (ed) | Belgium (d) | Netherlands | Scandinavia (abcdf) | Spain (g) | Czechoslovakia (abcd) | World Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1919 | 236,977 | 42,671 | 17,685 | 5,584 | 6,395 | 9,753 | 9,894 | 75 | 1,002 | 3,995 | 2,771 | 3,149 | 2,418 | 9 | 342,378 |
| 1920 | 248,762 | 56,844 | 13,385 | 11,890 | 11,746 | 5,297 | 6,123 | 62 | 1,815 | 3,840 | 5,510 | 2,292 | 2,008 | 567 | 370,641 |
| 1921 | 179,678 | 42,087 | 15,135 | 21,920 | 8,124 | 21,713 | 3,906 | 165 | 1,014 | 1,705 | 1,022 | 1,279 | 2,245 | 569 | 300,562 |
| 1922 | 296,267 | 11,724 | 24,352 | 27,546 | 9,207 | 15,934 | 6,430 | 2,493 | 2,643 | 172 | -3,807 | 1,778 | 589 | 567 | 395,886 |
| 1923 | 300,372 | 12,700 | 27,392 | 18,519 | 13,277 | 15,872 | 8,489 | 2,986 | 1,649 | 2,184 | 792 | 2,528 | 630 | 1,128 | 408,018 |
| 1924 | 317,747 | -11,550 | 30,446 | 22,727 | 14,299 | 19,571 | 8,764 | 2,346 | 3,124 | 2,688 | -807 | 3,178 | 944 | 1,370 | 414,847 |
| 1925 | 381,815 | 4,061 | 32,956 | 33,937 | 19,683 | 11,117 | 11,412 | 7,088 | 4,757 | 2,936 | 875 | 3,149 | 1,155 | 1,558 | 516,498 |
| 1926 | 396,667 | 84,865 | 34,240 | 22,775 | 20,229 | 18,125 | 9,809 | 6,529 | 9,021 | 2,498 | 2,670 | 4,046 | 1,299 | 1,370 | 613,643 |
| 1927 | 398,483 | 60,249 | 34,271 | 38,892 | 26,405 | 20,521 | 11,381 | 12,018 | 9,490 | 6,482 | 636 | 4,224 | 2,055 | 2,672 | 627,789 |
| 1928 | 404,496 | 4,846 | 36,498 | 37,855 | 30,447 | 25,621 | 12,433 | 15,134 | 8,430 | 7,958 | 2,243 | 4,418 | 3,178 | 3,138 | 596,695 |
| 1927: | | | | | | | | | | | | | | | |
| September | 29,801 | 7,800 | 1,956 | 2,891 | 1,850 | 2,025 | 684 | 518 | 772 | 552 | -33 | 451 | 155 | 272 | 49,694 |
| October | 27,671 | 5,888 | 3,479 | 4,202 | 1,790 | 1,966 | 1,021 | 1,075 | 908 | 465 | 156 | 401 | 153 | 363 | 49,538 |
| November | 36,123 | 1,687 | 3,661 | 4,209 | 1,916 | 1,575 | 1,167 | 1,312 | 836 | 749 | 298 | 474 | 246 | 317 | 54,570 |
| December | 28,082 | 309 | 4,696 | 3,108 | 2,302 | 2,710 | 1,462 | 1,453 | 1,242 | 784 | -202 | 514 | 268 | 300 | 47,028 |
| 1928: | | | | | | | | | | | | | | | |
| Jan. | 37,120 | 1,921 | 1,764 | 2,485 | 2,290 | 1,961 | 760 | 755 | 802 | 589 | 52 | 261 | 335 | 376 | 50,871 |
| Feb. | 30,926 | 3,143 | 2,526 | 2,984 | 2,553 | 1,248 | 437 | 753 | 616 | 599 | 98 | 307 | 296 | 297 | 46,813 |
| Mar. | 36,893 | 3,179 | 1,902 | 3,521 | 2,989 | 1,694 | 763 | 231 | 918 | 816 | 95 | 351 | 497 | 398 | 54,247 |
| April | 35,663 | —2,280 | 2,204 | 2,719 | 1,938 | 2,334 | 1,114 | 1,820 | 832 | 575 | 280 | 339 | 304 | 159 | 48,001 |
| May | 28,660 | —5,322 | 3,297 | 2,944 | 2,180 | 2,288 | 1,090 | 3,893 | 655 | 746 | 209 | 485 | 220 | 213 | 41,558 |
| June | 25,143 | —3,031 | 3,597 | 2,968 | 2,186 | 2,102 | 984 | 4,111 | 348 | 743 | 133 | 346 | 251 | 182 | 40,063 |
| July | 28,170 | —1,374 | 3,518 | 3,387 | 2,692 | 2,026 | 1,598 | 724 | 591 | 895 | 395 | 294 | 175 | 384 | 43,475 |
| Aug. | 28,827 | 48 | 3,527 | 2,744 | 2,447 | 1,868 | 875 | 632 | 707 | 519 | 316 | 359 | 58 | 94 | 43,021 |
| Sept. | 36,800 | 4,199 | 3,524 | 3,553 | 2,812 | 1,837 | 1,278 | 20 | 603 | 597 | 345 | 377 | 277 | 235 | 56,457 |
| Oct. | 41,667 | —934 | 3,728 | 4,386 | 2,943 | 3,711 | 1,049 | 98 | 766 | 696 | 141 | 527 | 250 | 318 | 59,346 |
| Nov. | 33,846 | —3,141 | 3,278 | 3,694 | 2,799 | 2,150 | 1,340 | 689 | 837 | 544 | 31 | 337 | 252 | 282 | 46,938 |
| Dec. | 40,781 | 8,438 | 3,633 | 2,470 | 2,618 | 3,002 | 1,145 | 1,378 | 755 | 639 | 148 | 435 | 263 | 200 | 65,905 |
| 1929: | | | | | | | | | | | | | | | |
| Jan. | 53,922 | 11,951 | 5,645 | 4,711 | 3,759 | 3,776 | 1,481 | 956 | 1,061 | 749 | 218 | 638 | 179 | 525 | 89,571 |
| Feb. | 61,331 | 5,179 | 5,001 | 4,613 | 2,988 | 2,727 | 1,259 | 684 | 1,131 | 627 | 113 | 226 | 115 | 356 | 86,275 |
| Mar. | 46,391 | 9,068 | 4,409 | 4,586 | 4,961 | 2,630 | 1,515 | 716 | 725 | 931 | 316 | 354 | 80 | 409 | 77,091 |
| Apr. | 52,447 | 8,295 | 4,854 | 5,351 | 3,177 | 2,308 | 1,407 | 703 | 1,518 | 750 | 144 | 956 | 40 | 445 | 82,395 |
| May | 48,350 | 5,112 | 3,152 | 3,682 | 2,937 | 2,314 | 1,417 | 996 | 1,437 | 854 | 201 | 468 | 37 | 277 | 71,233 |
| June | 38,676 | 4,787 | 6,814 | 3,948 | 3,075 | 1,593 | 1,624 | 695 | 2,215 | 672 | 687 | 507 | 24 | 420 | 65,737 |
| July | 40,914 | 4,993 | 4,839 | 3,559 | 3,205 | 2,388 | 2,023 | 700* | 2,918 | 1,039 | 253 | 519 | 30 | 465 | 67,845* |
| Aug. | 35,207 | 14,594 | 4,645 | 4,082 | 2,879 | 3,663 | 908 | 700* | 724 | 902 | 254 | 429 | 25 | 319 | 69,331* |
| Sept. | 32,171 | 17,010 | 3,889 | 4,691 | 1,908 | 3,511 | 1,224 | 700* | 853 | 672 | 253 | 361 | 50* | 477 | 67,770* |
| Oct. | 35,840 | 16,111 | | 3,855 | 1,821 | | 1,838 | | | | 278 | | | | |

a—Including gutta percha. b—Including balata. c—Re-exports not deducted in monthly statistics. d—Including some scrap and reclaimed rubber. e—Official statistics of rubber imports by Soviet Russia. f—Including Norway, Sweden, Denmark and Finland. g—United Kingdom and French exports to Spain except in years prior to 1925. h—French imports have been reduced 12 per cent in order to eliminate imports of gutta percha and to reduce to basis of net weight. [1]United States imports of guayule are not included in this compilation; such imports amounted to 4,305 tons in 1926; to 5,010 tons in 1927; to 3,076 in 1928; and to 743 tons in the first 8 months of 1929. *Figure is provisional; final figure will be shown immediately it becomes available.

## Domestic Production of Miscellaneous Rubber Goods

| | Rubber Proofed Fabrics Yards | Rubber Heels Pairs | Rubber Soles Pairs | Mechanical Goods Shipments Dollars |
|---|---|---|---|---|
| 1924 | 25,020,000 | 186,279,000 | (1) | $48,615,000 |
| 1925 | 23,988,000 | 206,970,000 | 16,211,620(2) | 64,877,000 |
| 1926 | 29,328,000 | 183,312,000 | 12,253,000 | 76,789,000 |
| 1927 | 37,872,000 | 201,014,000 | 27,160,000 | 68,625,000 |
| 1928 | 41,179,000 | 235,170,000 | 37,645,000 | 69,114,000 |
| 1928: | | | | |
| January | 2,177,000 | 17,682,000 | 3,431,000 | $5,630,000 |
| February | 2,575,000 | 19,181,000 | 3,628,000 | 5,838,000 |
| March | 2,853,000 | 22,588,000 | 3,747,000 | 6,675,000 |
| April | 2,416,000 | 18,575,000 | 2,928,000 | 5,406,000 |
| May | 2,744,000 | 21,597,000 | 3,519,000 | 6,274,000 |
| June | 2,953,000 | 18,763,000 | 3,321,000 | 6,126,000 |
| July | 3,447,000 | 17,620,000 | 3,168,000 | 5,157,000 |
| August | 4,613,000 | 21,289,000 | 3,461,000 | 6,306,000 |
| September | 4,966,000 | 21,451,000 | 2,725,000 | 5,393,000 |
| October | 5,914,000 | 21,932,000 | 2,297,000 | 5,837,000 |
| November | 4,173,000 | 18,686,000 | 2,649,000 | 5,201,000 |
| December | 2,348,000 | 15,811,000 | 2,771,000 | 5,271,000 |
| 1929: | | | | |
| January | 2,828,000 | 19,975,000 | 3,876,000 | 6,033,000 |
| February | 3,095,000 | 18,979,000 | 2,869,000 | 6,135,000 |
| March | 3,952,000 | 17,226,000 | 2,746,000 | 7,013,000 |
| April | 4,000,000 | 17,256,000 | 2,601,000 | 7,035,000 |
| May | 4,860,000 | 19,541,000 | 2,916,000 | 7,189,000 |
| June | 4,409,000 | 20,007,000 | 2,502,000 | 6,792,000 |
| July | 4,260,000 | 19,315,000 | 1,295,000 | 6,306,000 |
| August | 5,085,000 | 23,095,000 | 2,948,000 | 6,792,000 |

(1) Not available; (2) Last 9 months only.
Source: "Survey of Current of Business of the Department of Commerce."

## United States Imports of Guayule Rubber and Related Gums

*(All quantities in Long Tons)*

| | Guayule | | *Balata | | Jelutong | | Gutta Percha | |
|---|---|---|---|---|---|---|---|---|
| | Tons | Dollars | Tons | Dollars | Tons | Dollars | Tons | Dollars |
| 1919 | 1,430 | 760,690 | 727 | 937,038 | 8,332 | 2,213,964 | 2,900 | 1,068,698 |
| 1920 | 758 | 345,985 | 1,064 | 1,260,043 | 5,672 | 2,068,501 | 3,183 | 1,520,309 |
| 1921 | 58 | 26,945 | 814 | 1,077,859 | 1,745 | 351,893 | 985 | 333,564 |
| 1922 | 127 | 57,040 | 812 | 978,765 | 2,335 | 403,812 | 818 | 281,012 |
| 1923 | 1,155 | 542,227 | 700 | 898,524 | 4,565 | 853,308 | 912 | 375,167 |
| 1924 | 1,356 | 536,392 | 464 | 568,456 | 6,165 | 1,237,100 | 1,408 | 463,610 |
| 1925 | 3,781 | 1,803,448 | 517 | 574,750 | 6,749 | 1,642,531 | 1,603 | 629,284 |
| 1926 | 4,305 | 2,562,096 | 354 | 327,218 | 7,263 | 3,127,757 | 1,445 | 661,156 |
| 1927 | 5,018 | 2,674,957 | 582 | 447,246 | 7,785 | 2,448,657 | 1,494 | 728,172 |
| 1928: | 3,075 | 1,755,685 | 731 | 430,855 | 7,552 | 2,540,059 | 1,597 | 777,128 |
| July | 191 | 100,342 | 123 | 46,747 | 373 | 113,295 | 81 | 27,344 |
| Aug. | — | — | 399 | 165,460 | 451 | 126,962 | 147 | 60,738 |
| Sept. | — | — | 60 | 38,198 | 2,028 | 718,736 | 125 | 56,768 |
| Oct. | — | — | 121 | 59,358 | 429 | 129,065 | 239 | 94,570 |
| Nov. | — | — | 59 | 41,119 | 472 | 140,116 | 88 | 35,409 |
| Dec. | — | — | 83 | 58,311 | 522 | 156,154 | 145 | 59,911 |
| 1929: | | | | | | | | |
| Jan. | — | — | 46 | 30,374 | 484 | 152,260 | 138 | 62,950 |
| Feb. | — | — | 82 | 70,209 | 823 | 255,594 | 40 | 19,806 |
| Mar. | — | — | 90 | 75,444 | 428 | 122,026 | 1 | 1,140 |
| Apr. | 83 | 38,241 | 163 | 93,240 | 1,086 | 315,621 | 1 | 1,086 |
| May | 125 | 57,260 | 70 | 67,891 | 752 | 212,400 | 76 | 24,053 |
| June | 145 | 62,808 | 31 | 26,038 | 802 | 248,143 | 77 | 25,612 |
| July | 200 | 86,175 | 49 | 46,440 | 572 | 180,065 | 14 | 5,807 |
| Aug | 190 | 80,443 | 58 | 47,769 | 575 | 171,733 | — | — |
| Sept. | 107 | 51,156 | 38 | 30,327 | 913 | 279,225 | — | — |
| Oct. | 200 | 79,968 | 58 | 43,756 | 636 | 181,421 | — | — |

## Reclaimed Rubber in the United States

*(All Quantities in Long Tons—100% Basis)*

| Year | Production | Consumption Tons | Consumption % to Crude | Stocks* | Year | Production | Consumption Tons | Consumption % to Crude | Stocks* |
|---|---|---|---|---|---|---|---|---|---|
| 1919 | 81,366 | 73,535 | 36.3 | ..... | 1924 | 80,079 | 76,072 | 22.4 | ..... |
| 1920 | 86,395 | 75,297 | 38.4 | ..... | 1925 | 132,930 | 137,105 | 35.6 | 13,203 |
| 1921 | 36,725 | 41,351 | 24.1 | ..... | 1926 | 180,582 | 164,500 | 45.9 | 23,218 |
| 1922 | 57,834 | 54,458 | 19.3 | ..... | 1927 | 189,144 | 178,471 | 47.6 | 24,980 |
| 1923 | 74,766 | 69,534 | 22.7 | ..... | 1928 | 208,516 | 223,000 | 50.4 | 24,785 |
| 1927: | | | | | | | | | |
| Jan. | 16,526 | 12,374 | 39.3 | 25,903 | July | 15,488 | 13,842 | 47.4 | 26,599 |
| Feb. | 15,860 | 14,424 | 47.8 | 27,291 | Aug. | 15,109 | 15,836 | 47.3 | 25,157 |
| Mar. | 16,788 | 13,528 | 37.4 | 27,124 | Sept. | 14,392 | 14,790 | 54.3 | 23,429 |
| Apr. | 14,483 | 16,677 | 46.5 | 25,712 | Oct. | 16,127 | 17,292 | 64.5 | 22,176 |
| May | 16,159 | 15,754 | 46.1 | 26,419 | Nov. | 15,477 | 14,876 | 55.5 | 21,728 |
| June | 16,652 | 15,547 | 46.0 | 25,811 | Dec. | 16,083 | 13,431 | 52.7 | 24,980 |
| 1928: | | | | | | | | | |
| Jan. | 14,862 | 20,140 | 58.5 | 21,941 | July | 17,278 | 19,070 | 51.0 | 17,305 |
| Feb. | 15,291 | 18,670 | 55.4 | 20,848 | Aug. | 19,049 | 17,890 | 41.7 | 15,881 |
| Mar. | 17,069 | 20,680 | 57.9 | 19,558 | Sept. | 18,693 | 17,795 | 44.6 | 17,991 |
| Apr. | 15,393 | 19,280 | 58.8 | 19,283 | Oct. | 17,182 | 18,420 | 45.1 | 17,026 |
| May | 18,945 | 20,215 | 54.1 | 18,137 | Nov. | 18,245 | 18,380 | 49.1 | 22,399 |
| June | 18,781 | 18,140 | 48.2 | 18,709 | Dec. | 17,728 | 14,320 | 45.9 | 24,785 |
| 1929: | | | | | | | | | |
| Jan. | 18,685 | 21,068 | 49.1 | 24,394 | July | 18,387 | 20,236 | 48.7 | 19,679 |
| Feb. | 18,094 | 19,829 | 47.7 | 23,305 | Aug. | 19,787 | 18,230 | 47.6 | 22,309 |
| Mar. | 19,984 | 20,867 | 46.7 | 22,076 | Sept. | 18,660 | 17,071 | 49.2 | 24,984 |
| Apr. | 19,899 | 22,435 | 47.3 | 20,680 | Oct. | 18,865 | 18,744 | 53.8 | 25,117 |
| May | 20,385 | 23,176 | 47.1 | 19,479 | Nov. | 14,363 | 15,330 | 55.4 | 26,080 |
| June | 18,416 | 18,141 | 42.0 | 17,980 | Dec. | | | | |

*Stocks on hand at the end of month or year. Exports of reclaimed rubber, not shown in this table, amounted to 8,540 tons in 1927 and 9,577 tons in 1928.

# INDEX TO ADVERTISERS

Adamson Machine Co. ..... 300, 339
Akron Equipment Co. ..... 300, 339
Albert & Son, L. ..... 339
Aluminum Flake Co. ..... 335, 337
American Cyanamid Co. ..... 324, 338
Anaconda Zinc Oxide Dept. of I. L. R. Co. ..... 338
Anderson-Prichard Oil Corp. ..... 303, 336

Barrett Co., The ..... 338
Binney & Smith Co. ..... Back Cover, 338
Bridgwater Machine Co. ..... 339

Cabot, Inc., Godfrey L. ..... 305, 337
Carrier Engineering Corp. ..... 322, 339
Carter Bell Manufacturing Co., The ..... 335, 338
Chalfin, Inc., Joseph ..... 340
Cleveland Liner & Mfg. Co. ..... 340
Continental Rubber Co. ..... 340
Cooper, Wm., & Nephews ..... 324, 337

Damascus Manufacturing Corp. ..... 322, 333, 338
Dill Manufacturing Co. ..... 299, 338
du Pont de Nemours & Co., E. I. ..... 296, 337

Emerson Apparatus Co. ..... 339
Erie Foundry Co. ..... 339

Foote Bros. Gear & Machine Co. ..... 339
Farrel-Birmingham Co., Inc. ..... 339
Franz Foundry & Machine Co. ..... 333, 339

General Atlas Carbon Co. ..... 338
General Tire & Rubber Co. ..... 333, 340
Gross, A., & Co. ..... 338

Hall Co., The C. P. ..... 295, 338
Huber, J. M., Inc. ..... 338

Imperial Oil & Gas Products Co. ..... 337
India Machine & Rubber Mold Co. ..... 339
International Pulp Co. ..... 330, 337

Lowe Co., The Clyde E. ..... 339

Maywald, Fredk. J. ..... 340
McNulty, Joseph A. ..... 338
Montgomery, W. L., & Co. ..... 335, 338
Moore & Munger ..... 338
Muehlstein & Co., Inc., H. ..... 322, 340

National Aniline & Chemical Co. ..... 337
National-Erie Co. ..... 297, 339
Naugatuck Chemical Co. ..... 306, 337
New Jersey Zinc Co. ..... 338

Olin Laboratories, The R. R. ..... 332, 340

Pequanoc Rubber Co. ..... 340
Philadelphia Rubber Works Co. ..... 332, 340

Rand Rubber Co. ..... 335, 340
Rare Metal Products Co. ..... 337
Roessler & Hasslacher Chemical Co. ..... 294, 337
Royle & Sons, John ..... 301, 337
Rubber Regenerating Co. ..... 340
Rubber Service Laboratories Co., The ..... 337

Schrader's Sons, Inc., A. ..... 338
Scott Co., Henry L. ..... 322, 333, 339
Smith and Smith ..... 340
Southwark Mfg. Co. ..... 338
Spadone Machine Co. ..... 339
Stamford Rubber Supply Co. ..... 338
St. Louis Sulphur and Chemical Co. ..... 338

Tasco Asphalt Co. ..... 324, 338
Textile Finishing Machine Co., The ..... 333, 339

United Clay Mines Corp. ..... 337
U. S. Rubber Co. ..... 338
U. S. Rubber Reclaiming Co. ..... 340, 347

Vanderbilt, R. T., Co. ..... Front Cover, 337

Weber, Hermann ..... 340
West, H. T. Company ..... 338
Whittaker, Clark & Daniels, Inc. ..... 333, 337
Williams C. K., & Co. ..... 335, 338
Wilson Co., C. T. ..... 340
Wishnick-Tumpeer, Inc. ..... 337

Xylos Rubber Co. ..... 340

# Institution of the Rubber Industry

**The following papers will be read before the Institution of the Rubber Industry and published from time to time in Volume 5, of the "I. R. I. Transactions":**

"Anti-oxidants," Dr. W. J. S. Naunton.
"The Outlook in the Rubber Industry," H. Eric Miller.
"New Developments in Latex Application," Dr. Ernst A. Hauser.
"Electro-deposition," W. A. Williams, F.I.C., F.R.S.E., F.I.R.I.
"A Note on the Sunecracking of Vulcanised Rubber," B. B. Evans, B.Sc., A.I.C., A.I.R.I. (Sc.)
"Methods and Appliances Used for the Control of Some Manufacturing Processes in the Rubber Industry," Dr. H. A. Daynes.
"Observations on the Handling of Rubber Stocks," R. W. Griffiths, B.Sc., A. Inst. P., A.I.R.I. (Sc.)
"Rubber as a Substitute for Leather," Dr. P. Schidrowitz.

**Subscription Rates $6.50 for 6 issues POST FREE.**

**Published once every two months.**

**Each issue contains approximately 60 pages.**

**Apply for Specimen Copy to W. F. V. Cox**
**Institution of the Rubber Industry**
**Faraday House, 10, Charing Cross Road**
**LONDON, ENGLAND**

*In the lead for more than 40 Years*

# GUMMI-ZEITUNG

**Trade Journal for the RUBBER, GUTTA PERCHA, ASBESTOS, CELLULOID and Allied Industries**

**Central Organ for the Whole German Rubber Goods Industry**

*Published Every Friday*

**SUBSCRIPTION RATES**

In United States ..... RM 32
Domestic ..... RM 24

*Sample copy free*

**WORLD WIDE CIRCULATION**

Main Office of GUMMI-ZEITUNG
Berlin SW 19, Krausenstrasse 35/36

*Best Advertising Results for all those desiring to make trade connections in Germany in this field.*

# THE RUBBER AGE

**(of London)**

THE MONTHLY PUBLICATION
for
ALL BRANCHES OF THE RUBBER INDUSTRY

*Circulates Among Raw Rubber Producers, Importers, Manufacturers and Dealers*

**Published on 1st of each month**

**Subscription 10/- per annum**
**Single copies 1/3d post free**

**OFFICES:—43 ESSEX STREET, STRAND, LONDON, W.C.2.**